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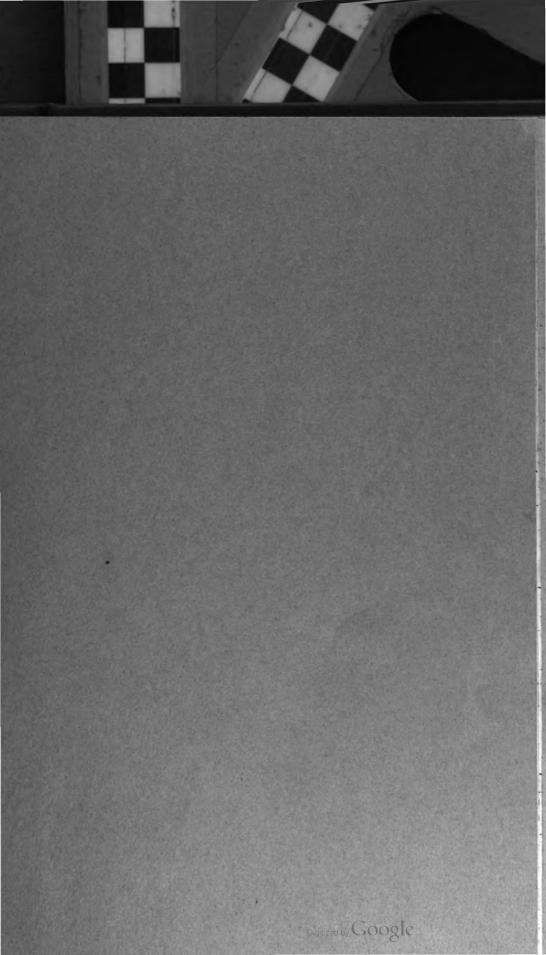


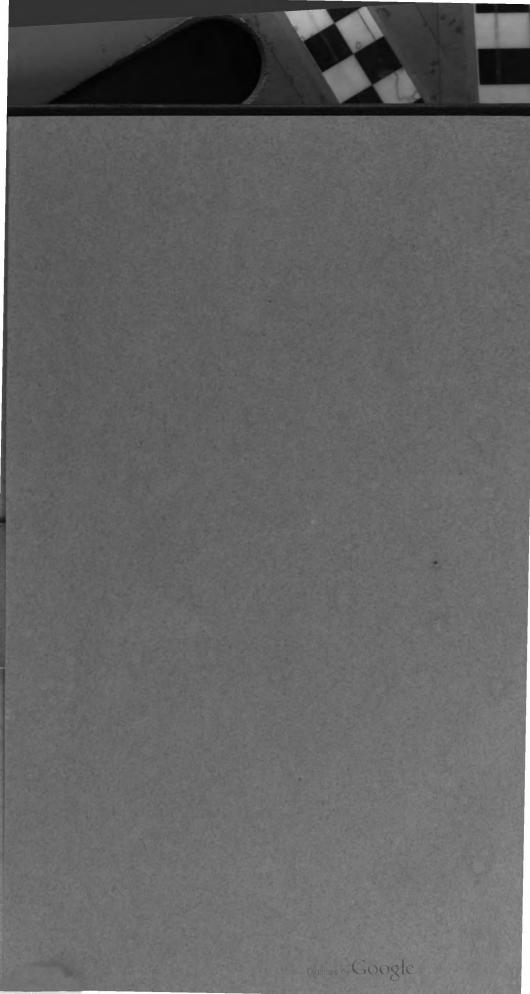
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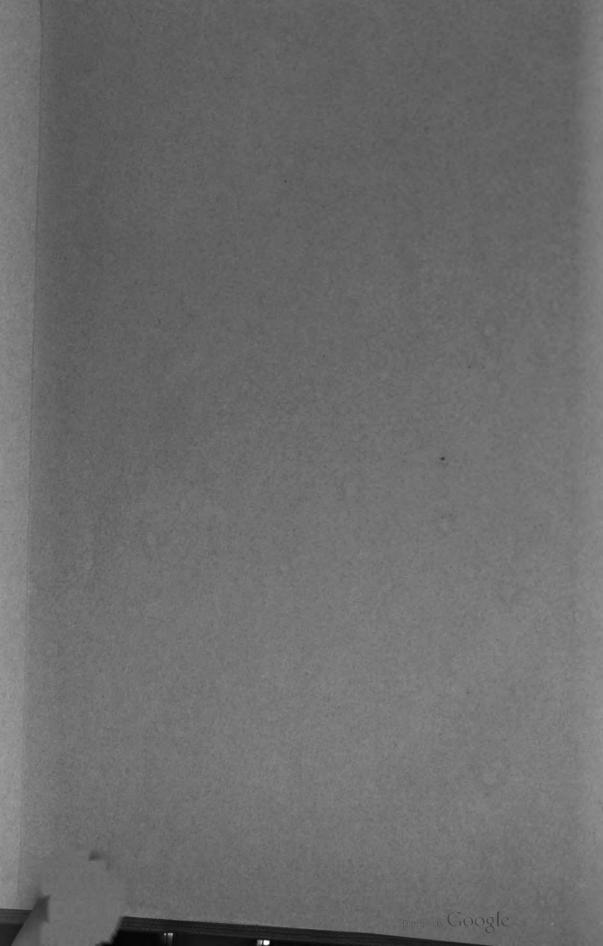












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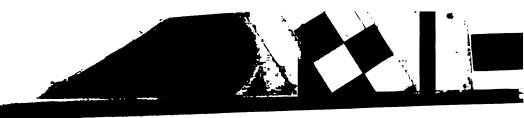
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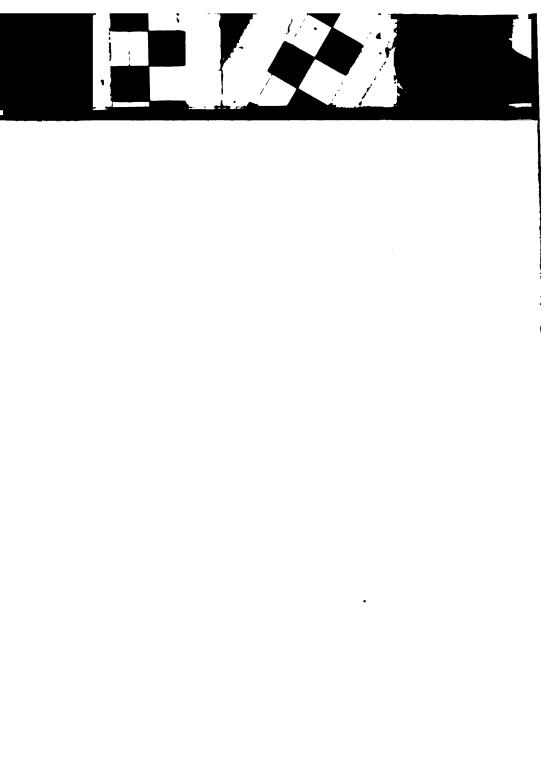
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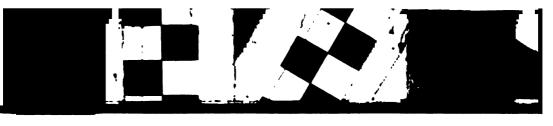
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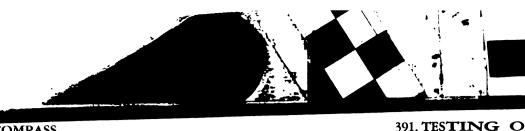
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**H4A**8 TELHOD OF CHEMICAL ANALYSIS High school trigonometry, and physics.

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Forty-eight hours total. Prerequisite: An elem geometry, chemistry and physics.

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High school trigonometry, and physics.

outing charts; testing of materials; gauging; erties of engineering materials; industrial tion; review of algebra and trigonometry; INSPECTION

#### gnetic and fluorescent particle inspection. Employment as an inspector (primary or final) or

on-terrous material. tion and interpretation; welding inspection; of manufacturing and fabrication of parts; magnetic methods, recording and interpreta-

H : slisinpersed, detot smod xis-vriidT magnetic field theory; rectangular, transmission lines; crystal frequen propagation; the ionosphere; anter Frequency-modulated receivers 814 KVDIO ENCINEEKING 🕆 seviupo 10 ; noitutiteni bosingooot a ni

Prerequisite: 2

Ar-abutilque tol elest brehenete bas wits; design of radio receivers pilemoins; automalie lubom ; stiuotio filter circuits; modul element tubes; amplihers; resout e; description of the Gyrocompass; the course recorder; repeater com-'il wiring; switchboard. by a specific shipyard as foreman, sub-

master switchboards; instruments,

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hting circuits; distribution systems; insformers; searchlight instruction, nting circuits; connections, phase inal lights, installation and supply; teneral arrangement of ship cabling 1 by a specific shippard as foreman, sub-

#### WATER SOUND AND iton and functions; installation of

power distribution; I. C. Switchtelegraph circuits; battle telephone indicator circuit; general testing eeous I. C. circuits. I by a specific shippard as foreman, sub-

A laboratory and lecture course organize inspectors in the physical laboratories and panies. Tests will be run on crude petrolet oil, spray oil, white oil, greases and asphalt a by Committee D-2 for Petroleum Inspector flash and fire, distillation, carbon, sulphur.

391. TESTING OF PETROLEUM PRO

tration and vapor pressure tests. Some time tension, ductility, dilution, aniline points, and Two hundred sixteen hours total; usually thirty hundred eighty hours laboratory. Prerequisite: 596. INSPECTION AND TESTING OF

A laboratory and lecture course to provide various technical laboratories in oil compat

viscosity, color, flash, cloud and pour, vapor

959. APPLIED METALLURGY FOR IN

Ninety-six hours total; twenty-four hours lectum laboratory. Prerequisite: High school physics or

Review of chemistry and physics; mechanical facture of iron and steel; alloys or iron, cat working of steel; heat treating of steel; to materials testing methods and equipment; i equipment.

geometry, chemistry and physics.

Forty-eight hours total. Prerequisite: An elemi

ELHOD OF CHEMICAL ANALYSIS High school trigonometry, and physics.

erties of engineering materials; industrial tion; review of algebra and trigonometry; INSPECTION

outing charts; testing of materials; gauging;

HdV

#### gnetic and fluorescent particle inspection. Employment as an inspector (primary or final) or

on-ferrous material. ction and interpretation; welding inspection; of manufacturing and fabrication of parts; magnetic methods, recording and interpreta-

#### H : slieiupstarq Letot stund xis-viridT Fielugnetic feld theory; rectangulary, transmission lines; crystal frequent

propagation; the ionosphere; anich Frequency-modulated receivery 914. RADIO ENGINEERING 1:

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#### OMPASS

; description of the Gyrocompass; ne course recorder; repeater coml wiring; switchboard.

by a specific shipyard as foreman, sub-

master switchboards; instruments, ting circuits; distribution systems; sformers; searchlight instruction, ting circuits; connections, phase nal lights, installation and supply; eneral arrangement of ship cabling

WATER SOUND AND

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on and functions; installation of bower distribution; I. C. Switchelegraph circuits; battle telephone indicator circuit; general testing

Sous I. C. circuits. by a specific shipyard as foreman, sub391. TESTING OF

A laboratory and inspectors in the pl panies. Tests will b oil, spray oil, white

by Committee D-2 flash and fire, distill tration and vapor p

tension, ductility, dil

Two hundred sixteen hundred eighty hours 596. INSPECTION

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A laboratory and I

Ninety-six hours total

laboratory. Prerequisit 959. APPLIED MET

Review of chemistr facture of iron and st working of steel; hear materials testing meth equipment.

> Forty-eight hours total geometry, chemistry and

Frequency-modulated receiver 914. RADIO ENGINEERING

in a recognized institution; or equiva-Thirty-six hours total. Prerequisite:

and standard tests for amplitude-fg cuits; design of radio receivers

Thirty-six hours total. Prerequisite: 1. magnetic field theory; rectangulal,

transmission lines; crystal freque,

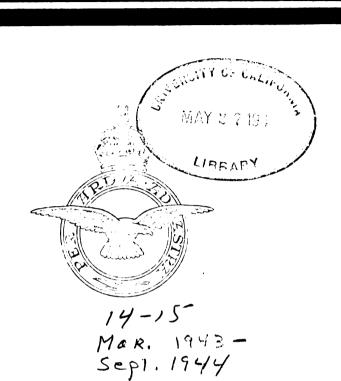
propagation; the ionosphere; ante,

EMICYL ANALYSIS etry, and physics.

ing of materials; gauging; ring materials; industrial gebra and trigonometry;

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nt particle inspection. nepector (primary or final) or



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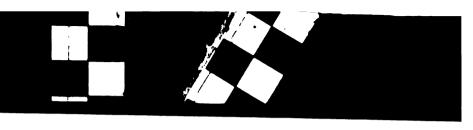
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Embodying also the Royal Australian Air Force, Royal Canadian Air Force, Royal New Zealand Air Force, and South African Air Force



#### **EDITOR:**

WING COMMANDER C. G. BURGE O.B.E., q.s., R.A.F.

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# THE ROYAL AIR FORCE QUARTERLY

**MARCH, 1943** 

NUMBER 2

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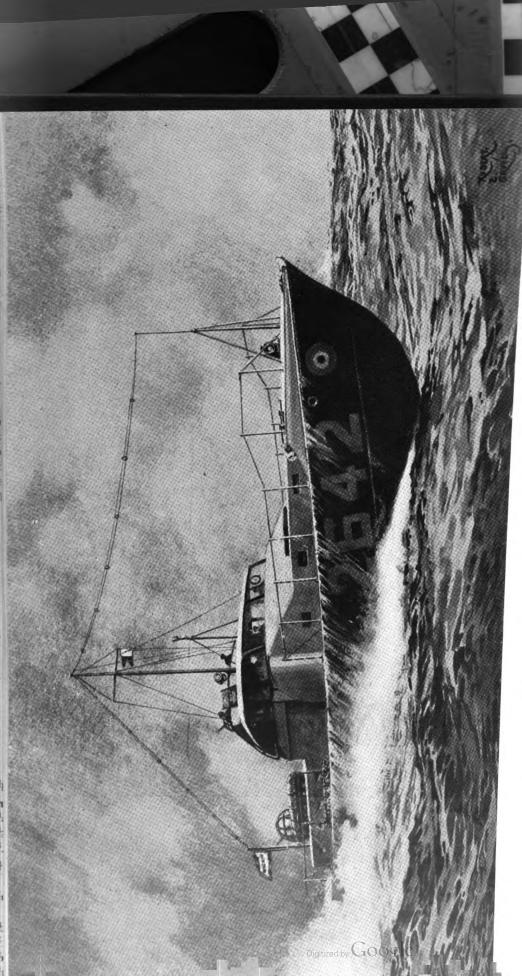
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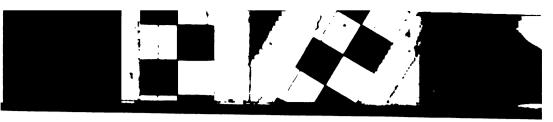
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#### AWARD OF THE VICTORIA CROSS

has approved the award of the Victoria Cross in recognition of most conravery to Aus. 402745 Flight Sergeant Rawdon Hume Middleton, Royal Air Force (killed), No. 149 Squadron.

Sergeant Middleton was captain and first pilot of a Stirling aircraft detailed he Fiat works at Turin one night in November, 1942. Great difficulty was l in climbing to 12,000 feet to cross the Alps, which led to excessive conference. So dark was the night that the mountain peaks were almost

the crossing Flight Sergeant Middleton had to decide whether to proceed or there being barely sufficient fuel for the return journey. Flares were sighted he continued the mission and even dived to 2,000 feet to identify the target, difficulty of regaining height. Three flights were made over Turin at this e before the target was identified. The aircraft was then subjected to fire anti-aircraft guns.

e hole appeared in the port main plane which made it difficult to maintain trol. A shell then burst in the cockpit, shattering the windscreen and

both pilots. A piece of shell splinter tore into the side of Flight Sergeant s face, destroying his right eye and exposing the bone over the eye. He bly wounded also in the body or legs. The second pilot received wounds and both legs which bled profusely. The wireless operator was also wounded

Sergeant Middleton became unconscious and the aircraft dived to 800 feet

trol was regained by the second pilot, who took the aircraft up to 1,500 feet d his bombs. There was still some light flak and the aircraft was hit many e three gunners replied continuously until the rear turret was put out of

Sergeant Middleton had now recovered consciousness and, when clear of ordered the second pilot back to receive first aid. Before this was com-

latter insisted on returning to the cockpit, as the captain could see very little speak only with loss of blood and great pain.

e was set for base and the crew now faced an Alpine crossing and homeward damaged aircraft with insufficient fuel. The possibilities of abandoning the landing in Northern France were discussed, but Flight Sergeant Middleton the intention of trying to make the English coast, so that his crew could ircraft by parachute. Owing to his wounds and diminishing strength he knew nen, he would have little or no chance of saving himself. After four hours n coast was reached and here the aircraft, flying at 6,000 feet, was once more nd hit by intense light anti-aircraft fire. Flight Sergeant Middleton was still trols and mustered sufficient strength to take evasive action.

crossing the Channel there was only sufficient fuel for five minutes' flying geant Middleton ordered the crew to abandon the aircraft, while he flew ith the coast for a few miles, after which he intended to head out to sea he crew left the aircraft safely, while two remained to assist Flight Sergeant

. The aircraft crashed in the sea and the bodies of the front gunner and flight vere recovered the following day. Their gallant captain was apparently unable

he aircraft and his body was recovered some weeks later.

t Sergeant Middleton was determined to attack the target regardless of the ces and not to allow his crew to fall into enemy hands. While all the crew heroism of a high order, the urge to do so came from Flight Sergeant whose fortitude and strength of will made possible the completion of the His devotion to duty in the face of overwhelming odds is unsurpassed in s of the Royal Air Force.

on Career. — Flight Sergeant Middleton, R.A.A. E. bwas Chorn Cin 1916 at, New South Wales; his home is at Leewang, Uarra Bandi, New South Wales.





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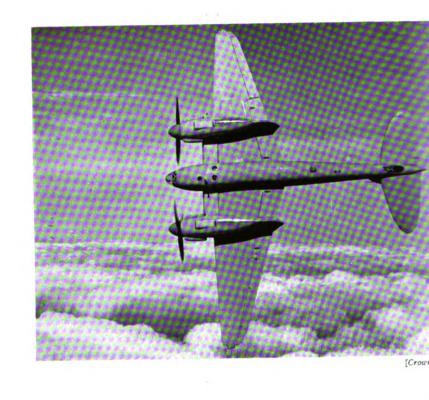
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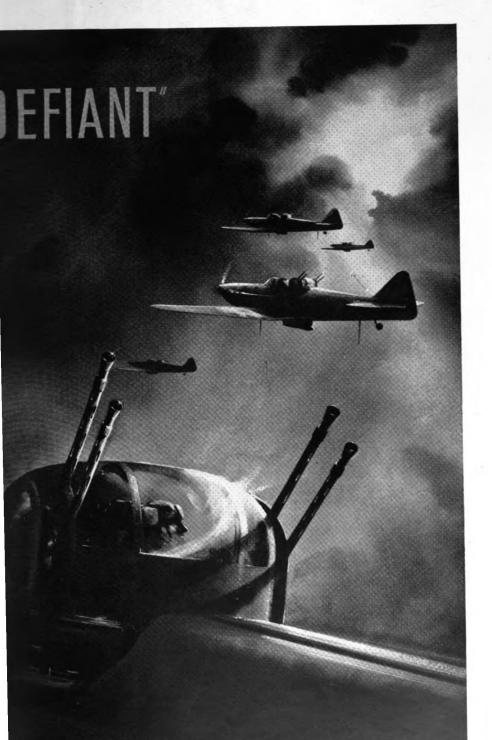
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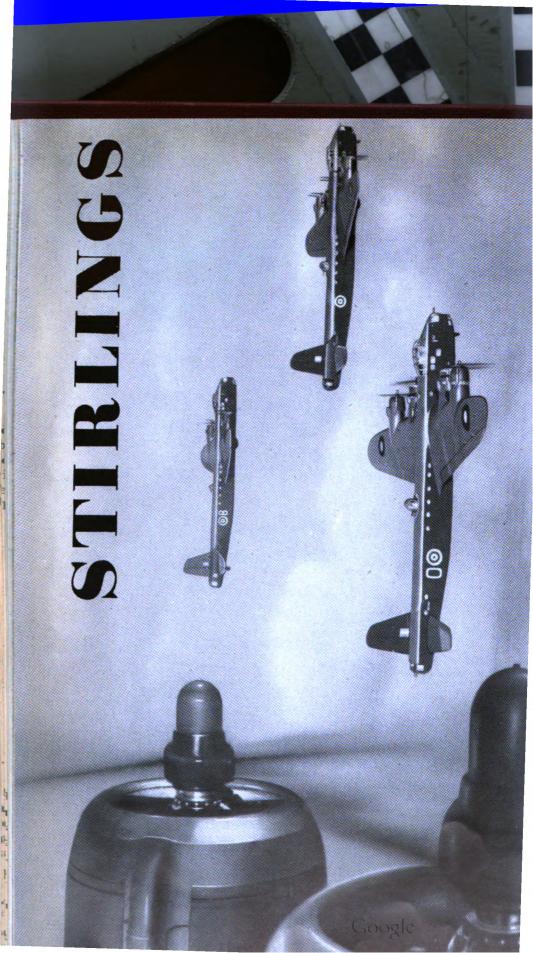


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SIR ARTHUR TEDDER, THE POPULAR A.O.C.-IN-C. R.A.F., MIDDLE EAST COMMAND, VISITS MESSES ON CHRISTMAS DAY, 1942.



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THE LATE LADY TEDDER, WHOSE CHARM AND UNSELFISH DEVOTION TO SERVICE SOCIAL
WELFARE WORK IN THE R.A.F., MIDDLE EAST COMMAND, ENDEARED HER TO ALL RANKS.

#### "THE FINEST AIR STRIKING FORCE IN THE WORLD"

#### THE GREAT LIBYAN VICTORY.

THE CLASSIC Example of the Application of the Principle of War-Co-operation.

#### PRELUDE.

It is reported that just before the Battle of Egypt began on 23rd October, 1942, General Montgomery, commander of the Eighth Army, addressing a gathering of officers, laid down five rules for battle, and one of them was: "Never do anything without adequate fighter protection—never, never, never." It may be thought that General Montgomery was stating the obvious. Perhaps. But in his wisdom he was rubbing in the outstanding lesson of this war-the absolute necessity of the closest co-operation between land and air forces. He was speaking on the eve of a campaign that was to make history, a campaign that was to provide a model of integration of air power with a land force. After the victory at El Alamein he was able to point to "the finest air striking force in the world.'

This air striking force has been growing steadily for more than two years. In the beginning it was pitiable. We have Air Chief Marshal Longmore's account of our air strength in the Middle East in June, 1940, when Italy stepped into the war. In Egypt and Palestine, Sir Arthur said, there were 40 Gladiators, 70 Blenheims, 24 transports, 25 Lysanders and 10 Sunderlands, plus 100 per cent. reserves of Blenheims, Lysanders and Gladiators. There was not much striking power there. But gradually the situation improved. Hurricanes went out, and as they flew over Cairo there was

a flutter of pride, and hope, in Britain's growing air power.

In 1941 the first American aircraft arrived in the Western Desert; this was the beginning of that steady stream of supplies which was eventually to provide the backbone of the air striking force. The Tomahawk fighters were in action in the summer of that year. They were followed by Kittyhawks (later to be transformed, like the Hurricane, into most successful fighter-bombers). These were in action very early in 1942. Many American medium and light bomber types were arriving, too. Among those were Bostons, Marylands, Baltimores, Mitchells and Marauders. The 9th U.S.A.A.F. arrived with Liberators. Joined with this formidable array were such British types as the four-engined Halifax, the Spitfire, Beaufighter and Wellington. These were the machines at the disposal of Air Chief Marshal Tedder and his A.O.C. in the Western December 19 Marshal Conjugatam, when General Alexander Inyached in the Western Desert, Air Vice-Marshal Coningham, when General Alexander launched his attack. His commander in the field, General Montgomery, knew precisely the quality and quantity of the air support the Eighth Army would receive. Just as in that Army were units from many lands, so in the air force—men of the Royal Air Force, the United States Army Air Force, the South African Air Force, the Royal Australian Air Force, the Royal Hellenic Air Force and the Fighting French Air Force.

In the sixteen weeks that elapsed between the British stand at El Alamein and the attack, the Allied air force was engaged in an unremitting "defensive-offensive." It had come out of the retreat very well, having, by general consent, given unsurpassed air cover to the retreating army, and having succeeded in keeping its striking power in perfect order. Operating sometimes from bases little more than a dozen miles in front of the retreating sometimes. front of the pursuing enemy it had not once been caught. Consequently no time was lost in turning round on the enemy. At once, as the army stood its ground, the air force set about the gathering forces of the Axis. But the task of the air force also lay far beyond El Alamein; it had to hinder supplies. In this endeavour the Western Desert force was joined by that of Malta and together, in the sixteen weeks, they made 172 attacks on Axis supply bases in Africa, and in the course of 1,000 sorties against shipping sank or damaged over 100 vessels, including eleven tankers. The harbours of Benghazi (which in two years has been raided more than 270 times) and Tobruk were pounded day and night by R.A.F. Halifaxes and medium bombers and U.S.A.A.F.

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SIR ARTHUR TEDDER, THE POPULAR A.O.C.-IN-C. R.A.F., MIDDLE EAST COMMA MESSES ON CHRISTMAS DAY, 1942.



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HE LATE LADY TEDDER, WHOSE CHARM AND UNSELFISH DEVOTION TO SERVICE

4



## THE FINEST AIR STRIKING FORCE IN THE WORLD"

THE GREAT LIBYAN VICTORY.

SIC EXAMPLE OF THE APPLICATION OF THE PRINCIPLE OF WAR—CO-OPERATION.

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86 Liberators. Two thousand sorties were flown against Tobruk in 30th June and 23rd October. Powerfully armed long-range fighter for shipping, roaming the coast and shooting up vessels of all enemy before El Alamein was ceaselessly attacked by Hurricane an bombers; light and medium bombers went for his airfields and su period of ten days in July fighters and bombers flew 5,000 sorties The enemy's air activity was spasmodic.

In the middle of October the Axis gave a sign that they v business of supplying Rommel. They launched a full-scale offer This began on the 12th and lasted a week—and it failed. aircraft and the defenders of Malta had a record week. The I Aeronautica (the latter not very powerfully represented) flew approx against the island, using bombers heavily escorted by Messersch Re 2001's, fighter-bobmers (converted Messerschmitts) and sometim all types. They were met by some crack Spitfire squadrons and handled by Air Vice-Marshal Park, scattered the enemy's formations scampering back to their Sicilian bases. The R.A.F. won a great scampering back to their Sicilian bases. of 27 Spitfires and 13 pilots.

On oth October the Allied air force made a sudden and violed airfield. It was described as a "heavy attack" by R.A.F., U.S.A.A.S. S.A.A.F. bombers and fighters, the U.S.A.A.F. fighters having to combat over the desert during the operation. This swift blow a combat over the desert during the operation. This swift blow a distinction to discuss reasons for this large scale attack. a disinclination to discuss reasons for this large-scale attack.

Just over a week later (the Axis raids on Malta were then bec series of smashing attacks were launched on Daba, Fuka and other forward air bases. The "Boston tea parties" were a feature of these forward are parties and the state of the sta bombers going over in close formation and bombing at intervals of blanketing the whole target. These tactics were highly successful was on the 19th; on the 20th a "considerable weight" of bombs was on the 22nd from dawn to dusk there were intensive raids on enem the 23rd the attack was continued with even greater intensity. The opposed these attacks and more than twenty of his aircraft were de On the morning of the 24th the Cairo communique gave the news: with strong air support, attacked last night.'

#### THE ATTACK.

The Eighth Army moved forward in bright moonlight and t before them. The Allied air force which for sixteen weeks had been fi defensive action in Egypt, in Libya and far out over the Mediterranez enemy in Crete and in Sicily, was now concentrated in one mighty a front. All previous sortie records were eclipsed; the bomber effort by 20 per cent. than anything achieved in earlier campaigns (in General it had been considerable). On more than one day in the early stages total number of bomber, fighter-bomber and fighter sorties totalled Allies had complete command of the air and it was clear that the rai grounds which preceded the Eighth Army's attack had had the weakening the enemy's resistance. There were few air combats; the from the ground, the enemy putting up a fierce anti-aircraft barrage flying aircraft. For twelve days the battle was fought at El Alamei of Allied fighters overhead, beating off all enemy attempts to strike a

with light and medium bombers pounding the enemy only a few hundr of our line, the Eighth Army forced Rommel's men back yard by y

he enemy's resistance broke, and on 4th November came

14

om the air. This was Montgomery's "greatest air striking force in the world" boost.

the defeated army sprawled eastwards over the Egyptian frontier on the first of its 1,400-mile "advance westwards" to Tripoli they left behind them a scene estation stretching hundreds of miles along the desert highway. All the way I Alamein to Daba the road was lined with burnt-out vehicles. Shells, rifles, e guns, food and stores of every kind were scattered over the tarmac and the ng desert. Tents, staff trailer vehicles, bombs, dumps, and petrol stores were ned. The landing-grounds were littered with wrecked aircraft. Near Mersa 1, at a point where R.A.F. attacks had smashed the road, more than a hundred which had left the road, lay abandoned in the swamps. At Matruh itself there are devastation. Whole trains stood broken and gutted. Mersa Matruh fell on the weeken, Tobruk on the 13th, and Benghazi on the 20th. Then came a pause all was taking refuge in the natural defences offered round El Agheila and the Army, with its long communications, needed time to consolidate. The air forces were up with the army; the bombers were already far ahead and Tunis and Bizerta were among their targets. Long-range and other aircraft were escorting the ships bringing the army's supplies along as to the port of Benghazi. And at sea, Axis shipping was given little rest. aircraft had joined in this attack, and in the seven weeks (23rd October to 14th ber) they helped to sink or damage more than thirty ships. In this period R.A.F. lied aircraft flew 500 sorties against shipping.

#### "OUR BOMBERS WERE OVER ITALY."

hile the Eighth Army drove Rommel's forces farther and farthur westward great were made to prevent him receiving reinforcements of men and materials. In deavour the Navy and the Allied air force received powerful aid from the homebombers of the R.A.F. They began by attacking Genoa—they were over the Montgomery's men were moving forward on the night of 23rd October. Genoa, st important Italian supply base for the Middle East, was very heavily attacked. ther, between 22nd October and 13th December (when Rommel was turned out Agheila position), the R.A.F. made fifteen attacks on Italy and their losses did ceed thirty aircraft. In these attacks Genoa was raided six times, Turin eight, twice, and Savona once. In the five weeks to the end of November more than ons of bombs were dropped on Italy by our heavy bombers. Lancasters played portant part in the attack and it was these machines that made the remarkable nt raid on Milan. More than eighty machines attacked and only three were lost. notographic and other evidence has shown that these attacks were successful in ng their twin objects, which were to confuse temporarily the workings of the northern industrial centres and to make it difficult, if not impossible, for the Axis Genoa as the port from which to rush supplies to Tripoli. At Turin the damage was greater than in any night bombing attack on an enemy city. rial quarter more than seventy plants suffered major damage. In Milan, on which o attacks were delivered in twenty-four hours, the dislocation of industrial output ut of all proportion to the weight of attack. Of Genoa, an eye-witness of the wrote: "The burnt and destroyed areas of Genoa are so large and many that seless to attempt to give details of the damage." The greater part of the coml and administrative centres of the port were wrecked. The headquarters of the company were gutted, many warehouses burnt out, fitting-out yards were made s and hits were scored on two 30,000-ton liners in the harbour. So much damage light a loss must rank these raids as one of the Bomber Command's finest ements.

these were the first really heavy and concentrated attacks on Italy and, if reports be believed, the citizens of Turin, Milan and Genoa were very much disturbed. The know from our own experience that in the absence of Combing morale quickly ers, and from this distance it is impossible to predict how the Italians will react the city and the prime Minister. Only four cities are reported by the Prime Minister.

though important from the industrial and maritime point of view fraction of the Italian people.

#### THE DESERT ADVANCE RESUMED.

As our bombers were flying home from Turin in the early hour after the last attack on Italy, the Eighth Army was poised before if necessary, to throw its weight into a stiff fight for Rommel'. But, as we know, the enemy chose to retreat, and on 13th December was once again in full cry. On that day the fighter-bombers delive and concentrated attack of the whole campaign. Hundreds of the used in a dawn-to-dusk effort to smash the enemy transport column Nofilia. The targets were not so good as they were after E1 Alar

traffic jams and the Kittyhawk pilots had a roving commission—to everything on the road.

On a diminishing scale the Allied air force kept up the attack days as the enemy fled towards Buerat. But from 21st December the air striking force was less active. On several days dust-storms I the ground. The Eighth Army was consolidating and gathering it last phase and so was the air force. When next they moved it was Tripoli. The move was made on 16th January—Rommel withdrew once again the fighter-bombers went after his transport. These cold fast and the Luftwaffe, having some good bases round the capital, fight than it had for weeks. So the bombers went for Castel Be airfield, and made five heavy attacks between the 17th and 22nd. reported that the R.A.F. Regiment found 100 aircraft smashed up a Castel Benito. On the 22nd the enemy was fleeing beyond Tripoli and that the full weight of our fighter-bomber effort was directed against columns moving along the coast road into Tunisia. "Great damage said the communique. Tripoli fell on the 23rd and after seventy-two attack the Allied air force reduced its pressure. The enemy colum out. "Rommel on the run"—that maddening phrase—it was really was running right out of Italy's empire.

All the way from El Alamein to Tripoli the air striking force Eighth Army's forward troops and it was able to do so because the tion was equal to the pace of the advance. To do their job the fight their short effective range, need the most advanced possible bases, provided. The campaign saw the R.A.F. Regiment in action for the won its spurs by capturing a number of enemy airfields and landing them El Daba, where they took 200 prisoners. Hard on the heels Regiment went the R.A.F. Servicing Commandos, sent in by air t lorries to take control of the airfield, act as advance servicing party

working with the Royal Engineers, laid out many new landing-grounds. There were many fine examples of this ground work and we will the closing stages of the advance on Tripoli. At five o'clock on the a January an officer in charge of advance landing-grounds set off for the by an R.A.F. mobile supply column and a party of Royal Engineers. his party travelled non-stop for five hours over the most difficult countrin a mist as thick as the worst London fog. They covered forty me camped till first light, and set off again. Within two and a half hours the sites had been chosen and Advanced Air H.Q. was signalled that or

the temporary defence of the field. As the Army's advance exten

would be ready for use in three hours. The R.A.F. officer in charge and Engineers set the R.E. party to work and the R.A.F. men marked off empty petrol cans to indicate the corners. Stores were unloaded, camel

d, by working through the night, the third was ready next morning. of these landing-grounds brought the advance squadrons within 100 flying miles poli town, and when the first one (1,200 yards square) was completed the aircraft y personnel of a complete fighter formation was moved on to it from a distance miles, in one hop. moving fighter formations in this way the Allied air force made as much use

sport aircraft as was possible with the numbers at its disposal. These machines, an and British, transported petrol and stores—on one day in December seventythem delivered such cargoes to one landing-ground alone. In November one pounds of stores were transported by air. The immense advantage of air ort when the supply lines stretch over hundreds of miles of desert can be simply ted. When our army was consolidating beyond Benghazi the road journey from ccupied nearly a week. By air a fast machine could do the trip in five hours.

#### WHY THE LUFTWAFFE LOST.

e must end with the fall of Tripoli. By the time it is read the emphasis will have to Tunisia and much may have happened there. Nevertheless, it is possible down—without risk of being confounded by events—one or two reasons why the air force achieved such an overwhelming success in that three months' advance. and perhaps foremost the Allies had superiority in technical quality of aircraft. uftwaffe (in which we include the Regia Aeronautica) produced nothing new in mpaign; nothing, for instance, to match the Spitfire, which proved a great success desert and made short work of the Junkers 87 dive-bomber whenever that die-ppeared. It met, too, its old friend, the Me. 109 and made rings round it. The ane and Kittyhawk fighter-bombers, once rid of their load, also proved more match for the enemy's fighters. To have the best single-seater fighters is of ount importance, and the Allies had them. They had, too, a mixed bomber force raordinary power and range, and with it were able to strike the enemy at all in the vast Mediterranean battle area. With this technical superiority went ority in numbers.

has been estimated, unofficially but reliably, that the Luftwaffe had 1,000 frontrcraft. If we had a numerical advantage on 23rd October this must have been ed a fortnight later, for after the Battle of Egypt 550 Axis aircraft were found landing-grounds and our losses during that battle were light. As the advance shows that between 23rd October and 23rd January the Allies lost, in the entire ontrolled by the Middle East command, only 255 aircraft; the Luftwaffe losses

abat were 433 aircraft plus several hundreds on the ground.

third reason for the Allied success was the highly efficient ground organization. r striking force could not have done its job if the servicing and maintenance oved inadequate. Much has been said of the faithful work of the ground crews, day and night to keep the aircraft flying. One example that may be quoted is e percentage of serviceability among Bostons and Baltimores reached anywhere to 85. A passage from *The Times* is worth quoting here. Their corresnt, after seeing much of the air force, was writing of the high spirit of the flying fore the attack, and he added this: "What is perhaps surprising is to find exactly ne outlook among the ground crews and maintenance staffs whose work seems dull and rather hard. I have seen bombers land, and even before the pilot was his seat the petrol bowser was across the landing-ground and the bomb wagon up alongside . . ."

here is a fourth reason—someone has described it as "masterly handling of the squadrons in a balanced offensive," which is a nice, sober way of summing the brilliant achievements of Air Chief Marshal Tedder and Air Vice-Marshal sham. In their hands was one of the greatest concentrations of first-class air ever assembled; they fashioned it into a mighty striking force. They used it

# TACTICAL DEVELOPMENT OF AIR WARF

1942 WAS a year of diminishing strength for the enemy air forcaccession of power to the R.A.F. and Allied air forces.

Heavier bombers, hedge-hopping to their targets, and faster offensive to the Axis in daylight. Superiority over the Luftwa types over all battle fronts, together with new tactics in faultless coand sea forces indicate the development of the R.A.F. in 1942.

Tactical developments, improved technical devices, greater nur greater skill acquired through efficient training and operational exp the R.A.F. the initiative in the skies.

Bomber.—Recent tactical advances and the use of four-engined with the fast Mosquito bomber in place of older two-engined types, I Command to hit the enemy far harder in 1942 than in previous damage has been done to German and Italian war industries, p without any corresponding increase in the actual number of aircr such attacks. A thousand bombers at a time proved to be an in the normal way Bomber Command continued to operate with abentire front-line strength of the R.A.F.

The Germans were compelled to relinquish the idea of using I port on the Atlantic Coast of France as a base for capital ships. I released for the attack on the enemy's war industries and communi with the devastation of the Renault Works outside Paris, in which precision of new and more scientific methods of bombing were should be a support of the competition of the scientific methods of bombing were should be a support of the competition of the support of the scientific methods of bombing were should be a support of the suppo

The advantage of the "saturation" attack was first clearly re on Lubeck on the night of 28th/29th March. The method used was bombing into the shortest possible time and, as the technique was found possible to carry out very heavy attacks in as short a period as

Passive defences of a target are hopelessly confused by extreme which quickly disrupts communications. Guns and searchlights contrated effectively if large numbers of aircraft are over the target at By the end of the year four engined hombers of the RAE used.

By the end of the year four-engined bombers of the R.A.F. used greatly outnumbered the two-engined aircraft previously employed. including the new 8,000 lb. high explosive bomb, also appeared for 1942. Accuracy of bombing advanced with weight. Large fires star of a "saturation" attack increased the precision of bombing and gu quickly to the target. The liberal and skilful use of very powerful fla the objective at the beginning of the attack greatly reduced the prop

In daylight raids the technique of hedge-hopping across enemy climbing over the target to the minimum height at which it is safedrop their heavy high explosives was used by the twelve Lancaster the M.A.N. factory in Augsburg on 17th April. The same techniq the very much larger force which bombed the Schneider factory at Le six months later. The Schneider factory was bombed at dusk; hed

Dusk attacks provided the extreme examples of "saturation bor attack on the Schneider factory nearly 100 Lancasters bombed within By contrast the daylight attack on Milan on 24th October provided using cloud cover instead of hedge-hopping across France to the Alps in this operation was to keep the force together to achieve concentra

FIGHTER.—One of the main features of the development of air s

TACTICAL DEVELOPMENT OF AIR WARFARE IN 1942

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n and Holland strained the enemy transport system, already deteriorating in lustrial areas of Western Europe.

ese attacks were not haphazard, but part of the long-term policy of the R.A.F. troying German communications. Since the systematic attacks began in the one Fighter Group alone has "shot up" more than 400 locomotives.

ying in pairs or small formations fighter aircraft have constantly harassed enemy and interfered with supplies in France and the Low Countries. This is one of the low-level training our Fighter Squadrons went through in 1942 to perfect support technique. The whole of the air operations over Dieppe was controlled Fighter Group. Gun posts and strong points were attacked by fighters, while is under the group control laid smoke screens to cover landing and withdrawal. He Army signalled from the beaches: "Air cover faultless." Meanwhile, defenctics developed to such a point of efficiency that enemy raiders over this country

neavily punished and, with the exception of sneak raiders, almost driven from es over Britain.

ghter Command's offensive operations changed in character during the year fast and heavily armed Flying Fortress bombers became operational. They fly and farther than our own light bombers previously used in daylight sweeps and il able to look after themselves. They receive strong fighter cover as far as range

s both out and home. Tensively and defensively, fighters of one group have destroyed more than 500

aircraft during the year.

ne introduction of four-bladed propellers has once more given the R.A.F. ority, and the new Spitfire is as far ahead of the F.W. 190 as our Spitfires of a arlier were ahead of the Me. 109.

ome of these aircraft, together with earlier types and also with Beaufighters e latest Hurricanes have taken part in the protection of Coastal convoys. This sectacular, but equally vital function of Fighter Command operations, led to a decline in enemy bomber attacks on the convoys and exacted a higher toll on temy. The score in May was two ships for fourteen bombers; in June, two for eighteen bombers.

uring the year Fighter Command successfully developed the fighter-bomber for against German shipping. Whirlwind aircraft have done extremely well, ag home these attacks from mast height.

OASTAL.—In 1942 Coastal Command aircraft flew over twenty-five million miles, on anti-submarine patrols. Three hundred attacks were made on U-boats in patrols. Over 4,000 attacks were made on enemy shipping.

nese figures show how the Command's policy sprung to the offensive. Submarines attacked at their bases, or wherever they could be found at sea. Persistent g forced them to spend much of their time submerged and with their stings. One of the most important, yet unspectacular victories of the year was shared the Royal Navy by Coastal Command aircraft—the successful passage of the yes to North Africa. The armadas sailed to the West, unmolested by U-boats Coastal Command carried out the greatest submarine hunt of the war in the Bay cay and the Atlantic. The effectiveness of the screen was shown by the fact that ip was lost—or even attacked—until Gibraltar was passed.

his, although a special operation, was only part of the development and intensifiof the strategy of Coastal Command.

nemy submarines using French ports as their bases were mercilessly attacked in ay of Biscay throughout the year. Sunderlands, Whitleys, Hudsons, Liberators Vellingtons, joined later by Halifaxes, carried out the operations. Beaufighters thrown in as "police patrols" for bombers, which had forced the Germans to up flying-boats, bombers and fighters badly needed on other fronts; in an attempt ercept the U-boat hunters.

cept the U-boat numbers.

weathers. This fight is not a pitched battle; it is continuous wear down enemy reserves of U-boats and crews.

ARMY CO-OPERATION.—1942 saw a tremendous change in the support of troops in the field. Eighteen months ago Army Co of the R.A.F. relied almost entirely on the two-seater, single-reconnaissance duties. The introduction of the Mustang revoluse of military supporting aircraft. One man did the job of two; speed was replaced by something nearer 400; these aircraft are as able to defend themselves, and attack with energy, if necessary. of arrival the first Mustangs were being flown over Northern Franctions. The pilots, who underwent special training, enjoyed this

A new and vital aspect of the air war, airborne operations has complete unity with the Army. The new tactical developments fully tested in the North African operations.

MIDDLE EAST.—This year in the Middle East has been one of

ment. Bright in contrast with 1941, 1942 has not, however, been a had to be faced and passed. Organization, clever husbanding of res improvizations, made the Allied Forces masters of the air in 1942. means much more than superiority of air power over a battle are direction, efficient supply and maintenance—details affecting not of Commanding, but also the A.C.2 fitter who, under conditions as the air war, gets his engine fit to fly.

Middle East. In a major battle the modern army and the R.A.F. combined striking force. Lessons so learned may well be the basis Special tactics were developed for General Montgomery's can

taining perfect formation in the air it was found possible to patter so that a bomb fell in every fifty square yards of the target area. T proved these tactics to be the most effective means of destruction.

NORTH AFRICA.—In the North African campaign a party of personnel followed assault forces on to the beaches east of Algiers, consisted of serving commandos. The Americans had gone ahead Blanche, a large airfield near Algiers, which became the first R.A. Africa.

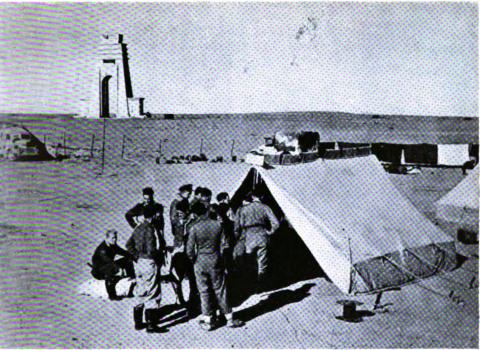
When the R.A.F. troops arrived on the beaches and fell in on for the airfield, a squadron of Hurricanes was waiting at a distant They landed during the morning and found the servicing commanc with fuel and supplies. The squadron went into battle within a few A detachment of the R.A.F. regiment came up with the vanguard of and prepared the airfield for the approaching fighters and bombers.

During the North African campaign a new type of bomber, the linto operation with an attack on enemy shipping at Bizerta.

Using the experience gained over Western Europe, Royal Air and fighters developed a smashing offensive against Axis shipping off the coast. Beaufighters operating at night are chalking up the mounting aircraft destroyed. Hudsons are ranging far over the Mediterranean opatrols. Co-operating with the U.S. Air Force in support of the arm aircraft are often flying through shocking weather—for this is the North Africa—to harry and disrupt enemy supply lines.

Malta.—Emerging triumphantly from the trying experiences of is now actively supporting our North African Air Forces against Axis s has been a complete change in the situation. The year opened or defensive note, culminating in the Blitz of March and April; then can have to July the testing of air strength ended in the R.A.F. g.



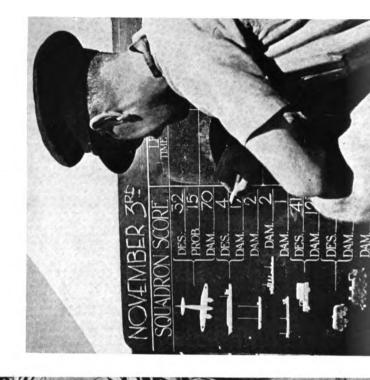


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CHURCH PARADE ON THE SHORE OF TRIPOLITANIA.

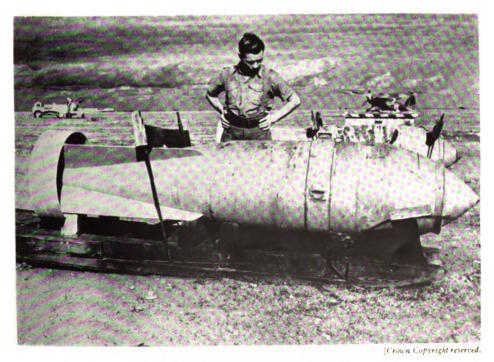


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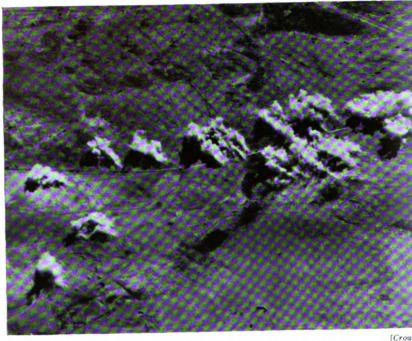




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BOSCHE BOMBS ABANDONED AT DERNA.



A BOMBING ATTACK SEEN FROM ABOVE.



Digitized by GOGIC [Crown Co

.F. have been on the offensive. This offensive has been growing in a crescendo most vitally connected with the efforts of the First and Eighth Armies in Africa.

ta has become an advanced base in the Battle of the Mediterranean. Malta's utlook was cheered by the magnificent spirit of the fighter pilots, and that is been the keynote of the R.A.F. throughout the year. Even when we were den by overwhelming enemy superiority some sort of a defiant offensive was need. In Malta, just as in Egypt, Britain, India or Burma the offensive continued.

IA.—Air operations from India Command in the beginning of the year were concerned with providing air cover in the retreat from Burma. In the first other, operations had to be made during the difficult and dangerous period of the n, but a concentrated scale of attack was maintained.

rab, the most advanced Japanese base on the west coast of Burma, airfields out Burma, Rangoon, oil refineries at Bangkok and ports in Sumatra were the rgets. An attempted attack on Ceylon was rendered abortive. To-day, Allied es are systematically increasing the offensive along the entire Indian front.

TRAINING.—Sir Archibald Sinclair recently stated that some sign of deterihas been noticed in German training, but behind the R.A.F.'s prodigious efforts r lies a feat of flying training surpassing anything dreamed of in the early stages var. The R.A.F. is in no fear of running short of highly trained, enthusiastic Research is constantly progressing in the application of new methods, machines ices for training purposes. A notable development in Flying Training Command 1942 has been the expansion of glider training. Large numbers of Army el have been trained by R.A.F. instructors. Another achievement during the s the reduction of the accident ratio to a gratifying low level. The development accilities for the rehabilitation of injured members of aircrews was further conand at the main centre 80 per cent. of the patients were returned to their units or partial flying duties.

ADA.—The Empire-wide training scheme for aircrews has resulted in many new being opened. New records have been made in the number of men trained. unceasing flow of men drawn from all parts of the British Empire and Allied pours out of Canada. Mr. Churchill described the Dominion as "the aero-of Democracy," and so paid fitting tribute to the continually expanding Air g Scheme which now has 150 establishments. Under the new agreement which to effect on 1st July this year, the United Kingdom will supply at least 40 per aircrews to be trained in Canada, leaving 60 per cent. to be supplied jointly by Australia and New Zealand. Nine different nationalities were recently included aduating course at one training school.

th increasing numbers of students at the Air Observer Schools as well as the training centres and thousands of Flight Engineers and Air Gunners graduating raining establishments in Britain, the night and day Battle of Training on both of the Atlantic is going on at full speed.

w types of aircraft and bombs and steadily increasing numbers of aircraft and nel bring 1942 to a close with the promise of approaching victory.

# STATISTICAL REVIEW for OCTOBER—DE AND JANUARY, 1943

## OCTOBER.

THE R.A.F. operated offensively over Europe on eleven nights a Bomber Command aircraft were over Germany on seven nights at the month and were over Northern Italy on three nights and exceptions weather was very unfavourable for night operations aga advantage was taken of cloudy conditions to press home daylight is weather attended the flight on the 1st to the Baltic Coast, but there over the submarine yards at Flensburg and Herrenwyk. Weather during the big daylight raid over Northern France on the 2nd, and the attack on Osnabruck on the 6th. Weather was excellent for consecutive night attacks on Genoa (22nd/23rd and 23rd/24th) but n the second night.

### BOMBING ATTACKS.

By Night.—On the night of 1st/2nd October objectives on the Germany, including Flensburg, were attacked. Greatly strengthe encountered. On 2nd/3rd the Rhineland, including Krefeld, was 5th/6th Western Germany, on the 6th/7th Osnabruck, on the 1 Germany, on the 13th/14th Kiel, and on the 15th/16th the Rhineland,

Attacks were made on the 22nd/23rd on Genoa, on the 23rd/24th Turin and other objectives in Northern Italy, and on the 24th/25th of targets in Northern Italy. In the first of the two heavy attacks on Ge although the force was a strong one, no casualties were incurred. (13th/14th) was the heaviest bombardment made on that target. on the 6th/7th) is the junction of two main railway lines carrying as a in Germany, and is also a big industrial centre. The attack was a centrated within about three-quarters of an hour.

On 29th October it was stated that during recent weeks aircraft of ?

had laid well over 1,000 mines in enemy waters.

By Day.—Our bombers, operating singly or in small numbers, Germany on the 6th, Upper Rhineland on the 9th, Western Germany (in on the 11th, objectives near Hanover, Wilhelmshaven and Bremen Western Germany on the 22nd, 29th and 31st.

A force of medium and light bombers attacked Western Germany

Mosquitoes bombed Flensburg on the 27th.
On the 24th, followed within a few hours by the night attack on the daylight attack was made on Milan by over eighty Lancasters, unescoshort distance into France. No previous daylight attack has investigated in the control of the control o distance flying over enemy territory and this was the first daylight ra crossing of the Alps. Only three aircraft were lost.

### ATTACKS ON ENEMY-OCCUPIED TERRITORY.

Bomber Command made ten attacks by day on occupied territory The chemical works at Sluiskil and an oil refinery near Ghent were at aircraft on the 1st. Mosquitoes bombed the iron and steel works near L Single Mosquitoes attacked targets in Holland on the 6th, including a fa station at Hengelo. Bostons made two attacks on the docks at Le H bombers attacked a factory at Hengelo and the docks at Den Helder or the 16th Mosquitoes again attacked the factory at Hengelo, and on the Lancasters without escort heavily bombed the Schneider-Cartel works The factory at Hengelo was again attacked on the 23rd, by medium and

STATISTICAL REVIEW FOR OCTOBER-DECEMBER, 1942, AND JANUARY, 1943

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in Holland on the 30th. On the 31st bomber aircraft attacked factories and I objectives in Northern France and Belgium. tures of the evening raid on the 17th, by unescorted Lancasters, on the Schneider rere the loss of only one aircraft out of the ninety-four sent out, and the fact the bombing was completed in seven minutes.

### U.S. ARMY AIR FORCES.

ibers of the U.S. Army Air Forces have made attacks on enemy-occupied on three days. Strong formations of bombers escorted by 400 fighters raided n France on a 160-mile front from Le Havre to Nieuport. Army Air Corps successfully bombed docks at Nieuport and Le Havre. Allied fighter squadrons ed fifty miles inland, escorting a very large force of Fortresses which bombed her Potez air-frame factory at Meaulte, the Luftwaffe maintenance and repair ther fighters scoured Nieuport, Dixmude, Ypres, and the St. Omer-Ambleteuse

the 9th over 100 U.S. Army Air Force Fortresses and Liberators made a highack on the steel and locomotive works at Lille. Diversionary sweeps and were provided by nearly 500 Allied fighters. Army Co-operation Command of the R.A.F. followed up the main raid with an attack on fortified positions French coast.

the 21st, Flying Fortresses, supported by Allied fighters, bombed the enemy ne base at Lorient and the aerodrome at Maupertus (near Cherbourg).

### FIGHTER COMMAND.

nter Command were repeatedly over enemy-occupied territory by day and also by

addition to the above-mentioned operations in support of the attacks by the A.F. on the 2nd, 9th and 21st, aircraft of Fighter Command attacked railways er objectives in France, Holland and Belgium on the 11th, 14th, 17th, 18th, th, 27th and 31st.

nter Command aircraft also escorted R.A.F. bombers in their day operations 15th over Northern France and Holland, and on the 24th they flew a short into France with the Lancasters which went on to bomb Milan.

### ARMY CO-OPERATION COMMAND.

..F. fighters of Army Co-operation Command made attacks on occupied Europe

days.

the 9th, Spitfires and Mustangs made a number of attacks on fortified positions French coast. On the 13th a goods train and other targets in Northern France acked. Mustangs shot up targets in Holland on the 14th, 16th, 17th and 21st. ing the week ending the 17th, nineteen railway engines, seven tugs and numerous and trucks were destroyd or damaged.

ing the operations on the 21st the first penetration into Germany by singlefighters based in England was made by Mustangs when they shot up a factory ometer at Lathen and barges on the Dortmund-Ems canal.

### ATTACKS ON SHIPPING.

he North Sea attacks on shipping were made by Fighter Command on seven d by Coastal Command on three days and two nights.

the French coast Fighter Command aircraft made attacks on minesweepers 6th and 14th, and on armed trawlers on the 15th and 22nd, an armed trawler on the 23rd and a dredger on the 24th. Coastal Command aircraft attacked on the 16th/17th. Off Zeebrugge, Spitfires attacked a supply ship on the 30th.

# STATISTICAL REVIEW for OCTOBER—DECEMBER, 1942 AND JANUARY, 1943

### OCTOBER.

THE R.A.F. operated offensively over Europe on eleven nights and twenty-one days. Bomber Command aircraft were over Germany on seven nights and nine days during the month and were over Northern Italy on three nights and one day. With few exceptions weather was very unfavourable for night operations against Germany. Full advantage was taken of cloudy conditions to press home daylight raids. Unfavourable weather attended the flight on the 1st to the Baltic Coast, but there were clear intervals over the submarine yards at Flensburg and Herrenwyk. Weather was fine and clear during the big daylight raid over Northern France on the 2nd, and was favourable for the attack on Osnabruck on the 6th. Weather was excellent for the first of the two consecutive night attacks on Genoa (22nd/23rd and 23rd/24th) but not so favourable on the second night.

### BOMBING ATTACKS.

By Night.—On the night of 1st/2nd October objectives on the Baltic Coast of Germany, including Flensburg, were attacked. Greatly strengthened defences were encountered. On 2nd/3rd the Rhineland, including Krefeld, was the target, on the 5th/6th Western Germany, on the 6th/7th Osnabruck, on the 12th/13th Northern Germany, on the 13th/14th Kiel, and on the 15th/16th the Rhineland, including Cologne.

Attacks were made on the 22nd/23rd on Genoa, on the 23rd/24th on Genoa, Savona, Turin and other objectives in Northern Italy, and on the 24th/25th on Milan and other targets in Northern Italy. In the first of the two heavy attacks on Genoa on 22nd/23rd, although the force was a strong one, no casualties were incurred. The raid on Kiel (13th/14th) was the heaviest bombardment made on that target. Osnabruck (raided on the 6th/7th) is the junction of two main railway lines carrying as much traffic as any in Germany, and is also a big industrial centre. The attack was a heavy one, concentrated within about three-quarters of an hour.

On 20th October it was stated that during recent weeks aircraft of Bomber Command

had laid we'll over 1,000 mines in enemy waters.

By Day.—Our bombers, operating singly or in small numbers, attacked Western Germany on the 6th, Upper Rhineland on the 9th, Western Germany (including Hanover) on the 11th, objectives near Hanover, Wilhelmshaven and Bremen on the 20th, and Western Germany on the 22nd, 29th and 31st.

A force of medium and light bombers attacked Western Germany on the 23rd, and

Mosquitoes bombed Flensburg on the 27th.

On the 24th, followed within a few hours by the night attack on the same target, a daylight attack was made on Milan by over eighty Lancasters, unescorted except for a short distance into France. No previous daylight attack has involved such long-distance flying over enemy territory and this was the first daylight raid involving the crossing of the Alps. Only three aircraft were lost.

### ATTACKS ON ENEMY-OCCUPIED TERRITORY.

Bomber Command made ten attacks by day on occupied territory.

The chemical works at Sluiskil and an oil refinery near Ghent were attacked by single aircraft on the 1st. Mosquitoes bombed the iron and steel works near Liege on the 2nd. Single Mosquitoes attacked targets in Holland on the 6th, including a factory and power station at Hengelo. Bostons made two attacks on the docks at Le Havre, and other bombers attacked a factory at Hengelo and the docks at Den Helder on the 15th. On the 16th Mosquitoes again attacked the factory at Hengelo, and on the 17th ninety-four Lancasters without escort heavily bombed the Schneider-Cartel works at Le Creusot. The factory at Hengelo was again attacked on the 23rd, by medium and light bombers. Mosquitoes raided objectives in Holland and Belgium on the 27th, and an airfield and a

factory in Holland on the 30th. On the 31st bomber aircraft attacked factories and

industrial objectives in Northern France and Belgium.

Features of the evening raid on the 17th, by unescorted Lancasters, on the Schneider works were the loss of only one aircraft out of the ninety-four sent out, and the fact that all the bombing was completed in seven minutes.

### U.S. ARMY AIR FORCES.

Bombers of the U.S. Army Air Forces have made attacks on enemy-occupied territory on three days. Strong formations of bombers escorted by 400 fighters raided Northern France on a 160-mile front from Le Havre to Nieuport. Army Air Corps Bostons successfully bombed docks at Nieuport and Le Havre. Allied fighter squadrons penetrated fifty miles inland, escorting a very large force of Fortresses which bombed the former Potez air-frame factory at Meaulte, the Luftwaffe maintenance and repair base. Other fighters scoured Nieuport, Dixmude, Ypres, and the St. Omer-Ambleteuse area

On the 9th over 100 U.S. Army Air Force Fortresses and Liberators made a high-level attack on the steel and locomotive works at Lille. Diversionary sweeps and escorts were provided by nearly 500 Allied fighters. Army Co-operation Command fighters of the R.A.F. followed up the main raid with an attack on fortified positions on the French coast.

On the 21st, Flying Fortresses, supported by Allied fighters, bombed the enemy submarine base at Lorient and the aerodrome at Maupertus (near Cherbourg).

### FIGHTER COMMAND.

Fighter Command were repeatedly over enemy-occupied territory by day and also by

night.

In addition to the above-mentioned operations in support of the attacks by the U.S.A.A.F. on the 2nd, 9th and 21st, aircraft of Fighter Command attacked railways and other objectives in France, Holland and Belgium on the 11th, 14th, 17th, 18th, 24th, 25th, 27th and 31st.

Fighter Command aircraft also escorted R.A.F. bombers in their day operations on the 15th over Northern France and Holland, and on the 24th they flew a short

distance into France with the Lancasters which went on to bomb Milan.

### ARMY CO-OPERATION COMMAND.

R.A.F. fighters of Army Co-operation Command made attacks on occupied Europe on nine days.

On the 9th, Spitfires and Mustangs made a number of attacks on fortified positions on the French coast. On the 13th a goods train and other targets in Northern France were attacked. Mustangs shot up targets in Holland on the 14th, 16th, 17th and 21st.

During the week ending the 17th, nineteen railway engines, seven tugs and numerous

barges and trucks were destroyd or damaged.

During the operations on the 21st the first penetration into Germany by singleengined fighters based in England was made by Mustangs when they shot up a factory and gasometer at Lathen and barges on the Dortmund-Ems canal.

### ATTACKS ON SHIPPING.

In the North Sea attacks on shipping were made by Fighter Command on seven

days, and by Coastal Command on three days and two nights.

Off the French coast Fighter Command aircraft made attacks on minesweepers on the 6th and 14th, and on armed trawlers on the 15th and 22nd, an armed trawler and tug on the 23rd and a dredger on the 24th. Coastal Command aircraft attacked shipping on the 16th/17th. Off Zeebrugge, Spitfires attacked a supply ship on the 30th.

Off the Dutch coast on the 14th Coastal aircraft attacked E-boats, and Mosquitoes

of Bomber Command attacked shipping on the 30th.

Off Norway on the 21st, Coastal aircraft attacked a supply ship.

THE ROYAL AIR FORCE QUARTERLY

COASTAL COMMAND.

In addition to operations recorded under the heading "Attacks fighters of Coastal Command shot down into the Bay of Biscay Ju. 88 which was attacking a Whitley on a submarine patrol.

On the 13th, Beaufighters shot down over the Bay of Biscay flying-boat. On the 26th a Beaufighter shot down another Ju. Biscay.

On the 20th it was first recorded that the conversion to torpedo bombers had greatly extended our range of aerial attack.

### ENEMY ACTION OVER BRITAIN.

Enemy aircraft were over this country on four nights and twee the month. On no occasion did they penetrate far inland. The raid-free nights. In the daylight raid on Canterbury on the 31s destroyed, and four others during that night. All other raids during the raid of the raids during the state when incidents were recorded from the raids. raiders on the 19th, when incidents were reported from twelve villages, and on the 26th, when bombs were dropped at several place

### MIDDLE EAST.

(a) OPERATIONS OVER LAND.—In the Middle East the R.A.F. night offensive action throughout the month attacking landing-ground communications, concentrations of troops, shipping and harbour in One feature of our air activity in the battle area was the succe

range fighters in operations along the coast against both land and

Operations developed with growing intensity, and on the 24th fighter bomber and fighter sorties broke all their previous records; had then increased by at least 20 per cent. This was the day following attack.

Our air power was switched from the task of holding down an enemy air forces and was flung at the enemy troops on the ground

(b) OPERATIONS OVER SEA.—Attacks were made consistently dur shipping carrying supplies to Tobruk and Benghazi. Attacks were redays. These included successful raids on convoys in the Mediterrance. days. These included successful raids on convoys in the Mediterr. Seas. A hit was scored on an enemy destroyer north of Derna on 19th a two-masted schooner was set on fire and left sinking south-we

On the 25th and 26th two merchant vessels were sunk and a tank Tobruk.

On the 28th a large tanker bound for the African coast was sunk on a merchant vessel in the Central Mediterranean.

### MALTA.

During the period from 10th to 26th October, probably the most the Island's history, 138 enemy aircraft were destroyed and many destroyed or damaged, 131 by R.A.F. pilots and seven by A.A. gun had to call a halt after deliberately forcing a trial of strength. Each day by our fighters took place further out at sea.

On the 11th and 12th the Luftwaffe and Aeronautica received their bi thirty-nine enemy aircraft being destroyed for the loss of six of our airc six hours the enemy made 600 sorties, not one of his aircraft being a

On the 12th twenty-four enemy aircraft were shot down.

On the 13th the one thousandth enemy aircraft was destroyed. Du 11th to 18th 1,400 enemy sorties were flown against the island, and 11 destroyed. Our losses during this period were twenty-seven Spitfires pilots of fourteen were saved. On the 19th an enemy trick to confus STATISTICAL REVIEW FOR OCTOBER-DECEMBER, 1942, AND JANUARY, 1943

hters, was followed by simultaneous bomber raids from the West, East and Less than one-tenth of the enemy forces crossed the coast, all three forces uccessfully dealt with by day and night fighters.

### AIRCRAFT CASUALTIES.

all offensive operations over Northern Europe the R.A.F. destroyed fourteen aircraft. This total includes aircraft destroyed during bombing raids over y and Occupied Territory, fighter sweeps and fighter escort activities. Twentyemy aircraft were shot down over this country by our fighters and by ground s, making a total of thirty-five enemy aircraft destroyed during the month. The lost 110 aircraft over Europe and three over this country.

the Middle East theatre of war, including Malta, our bombing raids and air nd support for ground forces cost the R.A.F. 120 aircraft. The Axis loss was

### NOVEMBER.

craft.

e outstanding feature of the weather was the widespread fog in the early part of oth. On only one of the first fifteen nights were flying conditions generally good nout the area of our home bases. On all but two nights during this period luced visibility to practically nil at times at many airfields between dusk and

nse fog persisted at some airfields on several occasions both by day and night. spite of difficult weather conditions out and home on the nights of the 6th/7th /8th attacks were made by our home-based bombers on Genoa. On the latter

ing, electric storms and an unbroken stretch of 200 miles of cloud were encoun-Over the target, however, weather was good on both nights.

thter sweeps were carried out by day in spite of thick cloud. cept for a spell of three successive nights of low cloud, conditions during the half of the month improved and advantage was taken of this by our bombers, and fighter-bombers in attacks on targets in Germany, Northern Italy and enemyd country by night and day. Weather, however, was very bad on the night 20th/30th for the attack on Turin by a small force of our bombers.

### Bombing Attacks on Germany and Italy.

Night.—Bomber Command carried out eight night attacks on Northern Italy

on Germany.
the nights of the 6th/7th and 7th/8th Genoa was the target, on the 9th/10th West Germany (including Hamburg), on the 13th/14th and 15th/16th Genoa on the 18th/19th and 20th/21st Turin, on the 22nd/23rd Stuttgart, and on the th and 29th/30th Turin again.

the four attacks on Genoa that of the night of 7th/8th was the heaviest raid war on Genoa. The third and fourth attacks were carried out without loss. ses for these four raids, together with two during the previous month, totalled elve aircraft—three of them without any loss.

the four attacks on Turin the second and third were by strong forces, the fourth mall number in bad weather. During the third attack 8,000-lb. bombs were i on Italy for the first time.

DAY.—Aircraft of Bomber Command carried out four daylight raids over ny. On the 3rd, Stirlings attacked industrial and railway objectives in Western ny; on the 6th, Osnabruck and other targets in Northern Germany were attacked; ves in Western Germany were attacked by Mosquitoes on the 16th without loss. per of offensive reconnaissances were carried out over Germany during the month.

craft of Bomber Command, it was stated on the 19th of November, laid no an 500 mines in enemy waters in less than one week, and the number of mines

ATTACKS ON ENEMY-OCCUPIED TERRITORY.

Bomber Command.—Bomber Command aircraft made sever one night attack on occupied territory during the month.

On the 1st, Bostons attacked an airfield and factory in Northe our bombers attacked communications in Holland; on the 6th, fighters, attacked the airfield at Caen, and other aircraft attack harbours. On the 7th, factories and railways targets in Belgiu bombed. On the 9th, Bostons supported by Allied fighters made and shipping at Le Havre, and on the 10th, Bostons returned to b On the 27th, Bostons bombed an industrial plant at Ijmuiden.

# On the night of 29th/30th bombers attacked railway communic

U.S. ARMY AIR FORCES. Bombers of the U.S.A.A.F. based on Britain made attacks

territory on six days. On the 7th heavy bombers (escorted by Allied fighters) raid submarine pens at Brest. On the 8th, Fortresses (escorted by Allitwo targets in Northern France—the Fives-Lille steel and locomo

and an airfield at Abbeville. On the 14th, 17th, 18th and 23rd, Fortr bombed the submarine bases at St. Nazaire (three times), La Pallice On all four days the bombers were supported by Allied fighters.

### FIGHTER COMMAND.

Attacks by Fighter Command aircraft on occupied territory w twenty-two days and four nights. Escorts were provided for the raids made by R.A.F. Boston be oth and 10th. Fighters also accompanied U.S.A.A.F. bombers on

17th, 18th and 23rd. Frequent daylight offensive patrols and swee fighters and fighter-bombers, during which industrial targets, railwa munications in France, Holland and Belgium and shipping and harbo the Channel coast were attacked.

On the 19th and 20th, aircraft of Fighter and Army Co-operation

out offensive patrols over France and the Low Countries. Intruder operations were carried out on the nights of 17th, 22nd/23rd and 28th/29th.

a three-pronged sweep over Northern France ranging from Cherbon one force escorting the Bostons in their attack on an airfield near ( On the 8th more than 300 Spitfires were engaged in the escort sionary sweeps over Northern France and some 200 of them took part

Two hundred Spitfires were engaged in the operations on the 6th

the Le Havre area on the 10th. ARMY CO-OPERATION COMMAND. Locomotives were shot up and damaged when aircraft of Ari

Command carried out offensive patrols and attacks on railways and France and the Low Countries on the 7th, 16th, 19th, 20th, 27th, 28th,

### ATTACKS ON SHIPPING.

In addition to attacks on canal barges and on shipping in harbours enemy-occupied territory) attacks were reported on Axis vessels on nir nights by home-based aircraft.

On the 3rd, Spitfires attacked shipping in the course of sweeps On the 7th bombers attacked shipping in the Gironde area. It the 8th that Hudsons of Coastal Command had attacked a merchant ve of Biscay. On the 15th Hampdens of Coastal Command hit a medium-s off the Norwegian coast. On the 19th aircraft of Fighter and Arm

Commands hit a small merchant ship off the Belgian coast and set it o

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wessel. On the 24th, in the course of offensive patrols by fighters a supply ship maged in the English Channel. On the 25th, Coastal Command Hudsons scored in a vessel off the Dutch coast. On the 26th, Mustangs of Army Co-operation and damaged two small supply ships off the Dutch coast. On the 27th a Hudson stal Command hit a supply ship off the same coast.

the night of 22nd/23rd, fighters on intruder patrol set on fire a supply ship in

annel, and on the 25th/26th a Coastal Command Hampden torpedoed a supply the Norwegian coast.

craft of Coastal Command continued their day and night offensive against Axis in the Bay of Biscay.

the 1st, Beaufighters shot down two Ju. 88's. It was reported on the 8th that arado float-planes were attacked by three Hudsons. Two of the Arados were ed. On the 23rd a Wellington shot down a Ju. 88 off Ushant, and on the 26th hters destroyed two enemy aircraft

hters destroyed two enemy aircraft. craft of Coastal Command contributed largely to the protection of the convoys h and North-West Africa, and in operations against U-boats off those coasts.

### ENEMY ACTION OVER BRITAIN.

acks, confined mainly to coastal districts, were made on this country on eight ring the month. On no occasion did enemy aircraft drop bombs on this country.

### MEDITERRANEAN FRONT.

o achievements stand out conspicuously. The R.A.F.'s striking contribution to Army's triumph in Egypt and the important part it played in protecting the and safe arrival of the vast Armada to North-West Africa.

craft of the Middle East Command were actively engaged on every day or night month in co-operating with our ground troops, paralysing the enemy's power ter-attack, and in their speedy leap-frog tactics in operating from airfields in the it of the advance—airfields they had blitzed a few days earlier. It long-range fighters widened their activities.

e versatility of our fighter-bombers was convincingly demonstrated—going out bers and then conducting fighter sweeps.

the first two days of the month one squadron alone destroyed eleven Stukas, 's and damaged many others for the loss of none of our aircraft.

ncentrated operations carried out on the 3rd by our Middle East air forces the total of enemy aircraft accounted for during the first twelve days of the East offensive up to 300 destroyed in the air plus a like number put out of action

East offensive up to 300 destroyed in the air plus a like number put out of action ground. 'e tempo of our attack was kept up without pause—except when impossible conditions intervened—on every type of target. Ground troops and road trans-

umns were strafed, advanced enemy airfields and air bases in the enemy's rear tacked as well as supply columns, troop concentrations and sea bases. Each our land troops pursued the retreating enemy objectives further to his rear ought into the picture until towards the end of the month our Middle East air were operating against the same vital targets that were being attacked by our ces operating with the 1st Army in North-West Africa—Bizerta, Tunis,

etc. addition to attacks on targets on the African mainland our air forces, including assed on Malta, were daily attacking enemy sea and air communications between Tunisia and between Crete and Tripolitania.

hkers, sailing barges, supply ships in the Central Mediterranean and in North harbours were continuously attacked. Transport aircraft flying between Sicily poli, Benghazi and Tunisia were severely dealt with.

ring the last forty-eight hours of the month our four-engined bombers operated

ipoli with scarcely a break.

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### THE ROYAL AIR FORCE QUARTERLY

AIRCRAFT CASUALTIES.

In all offensive operations over Europe by home-based aircraft eighteen enemy aircraft. This total includes aircraft destroyed fighter sweeps and fighter-escort activities.

A further ten enemy aircraft were destroyed over Britain (down by Naval A.A. fire) making a total of twenty-eight destroy

The R.A.F. lost eighty-one aircraft over Europe. No R.A over this country.

Fifteen enemy fighters were destroyed by the U.S.A.A.F.

The R.A.F. losses announced by the Middle East Command as against the destruction of 162 Axis planes. These latter include down by aircraft based on Malta.

### DECEMBER.

BOMBING ATTACKS ON GERMANY AND ITALY.

By Night.—Bomber Command carried out eight night attacthree on Northern Italy.

On the night of 2nd/3rd our bombers attacked targets in including Frankfurt; on the 6th/7th South-West Germany; on 8t 11th/12th Turin was the target. On the 16th/17th and 17th/18th I was the target; on the 20th/21st Duisburg; on the 21st/22nd Munic Western Germany was attacked during operations which also

Belgium. Western Germany was also attacked on 30th/31st.

The first of the three raids on Turin was a concentrated attacengined bombers and 8,000 lb. and 4,000 lb. bombs were dropped thousands of incendiaries. The second raid was also by a strong

third only a small force operated.

Extensive mine-laying operations were carried out during the

of Bomber Command.

By Day.—Aircraft of Bomber Command carried out four d targets in North-West Germany on the 8th, 13th, 20th and 22nd.

# ATTACKS ON ENEMY-OCCUPIED TERRITORY.

BOMBER COMMAND.—Bomber Command aircraft made attacks on on ten days and one night. On the 6th light bombers attacked the Pl at Eindhoven; on the 8th, 9th, 13th, 14th, 17th, 22nd, 29th and 31st railway and industrial targets in France and the Low Countries.

railway and industrial targets in France and the Low Countries.

On the 23rd Bostons bombed the docks at St. Malo and Ventura at Den Helder. Both of these attacks were supported by fighter airc

On the night of 23rd/24th bombers (as already recorded under on Germany and Italy") attacked trains and other railway targets in Belgium and Western Germany.

U.S. Army Air Forces.—Aircraft of the U.S.A.A.F. on the Fives-Lille locomotive works at Lille, and airfields at Abbeville. O bombers attacked targets at Rouen; on the 30th submarine pens at these raids cover and supporting sweeps were provided by aircraft of F On the 30th fighters of U.S.A.A.F. carried out a sweep over the B.

FIGHTER COMMAND.—On twenty days and three nights operations territory by Fighter Command were announced.

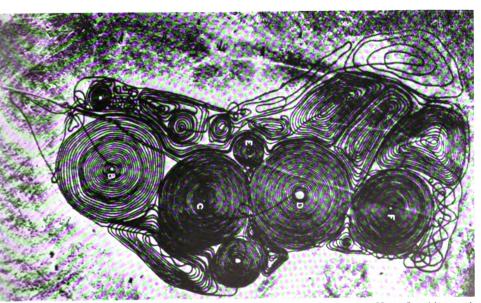
Support was provided for our bombers returning from the attace on the 6th, for U.S.A.A.F. bombers in their attack on the Fives-Lille v for U.S.A.A.F. heavy bombers' attack on Rouen on the 12th, for U.S.A and Liberators in their attack on Rouel on the 20th, for and Venturas in the attacks on St. Malo and Den Helder on the





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BURNT-OUT HANGARS ON AN ENEMY AIRFIELD.



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A KNITTING PROBLEM.

An airfield ploughed up by the Germans to render it unserviceable.



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I,

ENCAMPED UNDER THE WINGS OF A STUKA.



STATISTICAL REVIEW FOR OCTOBER-DECEMBER, 1942, AND JANUARY, 1943

the operations carried out on twenty days and three nights, attacks were made

way and industrial targets in France and the Low Countries.

uring the attack by U.S.A.A.F. bombers on the Fives-Lille on 6th December

400 aircraft of Fighter Command took part as cover for the bombers and in
diversionary sweeps. Our latest Spitfires took part in these operations.

the 12th approximately 300 fighters took part in the operations when Rouen tacked by U.S.A.A.F. bombers and about the same number of fighters supported

S.A.A.F. attack on Romilly-sur-Seine on the 20th of the month.

the 20th/21st Whirlwinds of Fighter Command operated as intruders for the me.

RMY Co-OPERATION COMMAND OF THE R.A.F.—On the 5th, 6th, 7th, 9th, 13th th aircraft of Army Co-operation Command of the R.A.F. attacked railway and ransport and other targets in enemy-occupied territory.

TACKS ON SHIPPING.—In addition to attacks on canal barges and shipping in rs (recorded under "Attacks on enemy-occupied territory") attacks were made my vessels on seven days and one night.

the 1st fighters attacked barges off the Dutch Coast; on the 3rd Fighter and aircraft attacked shipping off the Cherbourg peninsula; on the 7th fighters d three ships off the coast of Brittany; on the 9th Coastal Command aircraft d a supply ship off the Norwegian coast; on the 10th a small convoy off the n coast was attacked by fighters. On the 13th Coastal Command aircraft d shipping off Norway and aircraft of the same Command attacked a convoy Dutch coast on the night of 22nd/23rd and another convoy off the west coast way on the 28th. In all these attacks hits were observed, and damage resulted.

EMY ACTION OVER BRITAIN.—There was some enemy action over coastal areas ain on seventeen days and ten nights. Bombs were dropped on a few of these On only one occasion (on the 16th) did enemy aircraft penetrate far inland, wo of them reached the Home Counties.

### MEDITERRANEAN FRONT.

DDLE EAST.—Throughout December all types of aircraft of Middle East Command d in the non-stop air war against Rommel. While fighters provided a shield ur ground troops fighter-bombers blasted positions where enemy rearguards to make a stand.

thers afforded protection to coastal shipping bringing supplies to Tobruk and ızi. connaissance aircraft kept up constant watch for hostile shipping far out in

diterranean. Twin-engined fighters continuously intercepted Ju. 52 convoys g supplies for Rommel.

nost every night of the month heavy and medium bombers were in operation the enemy, four-engined bombers operating against Naples, Tripoli, Tunis, and Gabes—medium bombers attacking enemy supply ports. Targets included Italy, Sicily, Lampedusa Island and Crete. Torpedo aircraft had greater es than ever before in their attacks on enemy shipping.

the 14th, when the Eighth Army turned Rommel out of Mersa Brega, Allied bombers operated on an unprecedented scale in harassing the retreating enemy. ir Forces proved totally ineffective.

the night of 15th/16th in the raid on docks at Tunis and La Goulette the was sustained for over eight hours, the vital canal linking these two places

eartially blocked.

the 21st a surprise attack on the Hon landing ground resulted in seven out of aircraft on the ground being destroyed and others damaged. The same target ain attacked on the 24th, when further aircraft were destroyed.

at least 19 occasions during the month successful attacks were made on enemy tankers and other vessels operating in the narrows between Sicily and Tunisia.

THE ROYAL AIR FORCE QUARTERLY

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Short-range fighters and fighter-bombers (mainly R.A.F.) a airfields, ground troops, transports and installations in the battle and light bombers (mainly U.S.A.A.F.) attacked enemy ports, railway communications.

At night medium and light bombers of the R.A.F. kept up trating on the enemy's two major ports of Tunis and Bizer and 14th/15th eight raids were made on the docks at these two

R.A.F. night fighters inflicted a high ratio of loss on ener attacks on our ports, airfields and communications. R.A.F. flew many tens of thousands of miles in protecting convoys and in U-boats. U.S.A.F. transport aircraft were continuously engand supplies to forward areas over long lines of communication.

Throughout the month offensive sweeps and patrols by fight supported our forward troops.

### India—Burma Front.

The advance into Burma completes the story of the Allied defensive to the offensive on all fronts. Almost every day or ni the R.A.F. have maintained offensive action against the Japanese Burma.

Wellingtons and Blenheims have made numerous bombing river and coastal objectives. Fighters, mainly Hurricanes, hav support to the bombers and, in addition, have been constantly of sweeps and low-level attacks on railway targets, on airfields in th Toungoo, Akyab, Mandalay and Mungdon and on river transp Mayu, Chindwin, Irrawaddy and Mongwa Rivers.

Attempted raids by enemy bombers in the Calcutta and Cl been successfully intercepted by our fighters.

### AIRCRAFT CASUALTIES.

In offensive operations over Europe by home-based aircraft t twenty-two enemy aircraft. This total includes aircraft destroy raids, fighter sweeps and fighter escort activities. Eighteen destroyed over Britain, making a total of forty destroyed during the

The R.A.F. lost 118 aircraft over Europe and two over this total of 120. The R.A.F. losses announced by the Middle Eas forty-four, as against the destruction of 100 Axis planes. These shot down by aircraft based on Malta.

# JANUARY, 1943

EUROPEAN THEATRE.—The R.A.F. operated during every day a in the European Theatre.

Bomber Command.—Bomber Command operated (including so submarine patrols) on twenty-two nights and on twenty-nine days

At night sixteen bombing attacks were made on Germany at

territory. The German targets were: the Ruhr (9 raids), Western (2), the Rhineland (1), Dusseldorf (1), Cologne (1) and Hamburg (1 In the first half of the month there were seven raids on the The raids of 13th/14th (Ruhr) and 27th/28th (Dusseldorf) were extra the raids of 13th/14th (Ruhr) and 27th/28th (Dusseldorf) were extra the raids of 13th/14th (Ruhr) and 27th/28th (Dusseldorf) were extra the raids of 13th/14th (Ruhr) and 27th/28th (Dusseldorf) were extra the raids of 13th/14th (Ruhr) and 27th/28th (Dusseldorf) were extra the raids of 13th/14th (Ruhr) and 27th/28th (Dusseldorf) were extra the raids of 13th/14th (Ruhr) and 27th/28th (Dusseldorf) were extra the raids of 13th/14th (Ruhr) and 27th/28th (Dusseldorf) were extra the raids of 13th/14th (Ruhr) and 27th/28th (Dusseldorf) were extra the raids of 13th/14th (Ruhr) and 27th/28th (Dusseldorf) were extra the raids of 13th/14th (Ruhr) and 27th/28th (Dusseldorf) were extra the raids of 13th/14th (Ruhr) and 27th/28th (Dusseldorf) were extra the raids of 13th/14th (Ruhr) and 27th/28th (Dusseldorf) were extra the raids of 13th/14th (Ruhr) and 27th/28th (Dusseldorf) were extra the raids of 13th/14th (Ruhr) and 27th/28th (Dusseldorf) were extra the raids of 13th/14th (Ruhr) and 27th/28th (Dusseldorf) were extra the raids of 13th/14th (Ruhr) and 27th/28th (Dusseldorf) were extra the raids of 13th/14th (Ruhr) and 27th/28th (Dusseldorf) were extra the raids of 13th/14th (Ruhr) and 27th/28th (Dusseldorf) were extra the raids of 13th/14th (Ruhr) and 27th/28th (Dusseldorf) and 27th/28th (Duss lasting twelve and twenty minutes respectively. 8,000 lb. bombs fe

From 21st-23rd/24th there was bombing on three successive d two other periods on two days and two nights successively; three nights and one day of successive bombing and one twenty-four-hot day and night of the 3rd.

The night raids on occupied territory were directed against Lori Day raids on occupied territory were made against vertus (1), Caen (1), Tricqueville (1), Ijmuiden (2), Cherbourg (2), Hengelo (1), stallation—Terneuzen (1), Flushing (1) and Copenhagen (1).

n the Ijmuiden attack on the 9th hits were seen on the furnace, coke-oven plant,

olling mill and railway sidings.

our daylight raids on Germany were made by British bombers on two days. he 23rd Wellingtons and Mosquitoes raided North-West Germany; on the tenth

ersary of Hitler's assumption of power Mosquitoes made the first daylight attack according to the morning of Saturday (30th) and returned to the attack afternoon. On the same day Wellingtons bombed Emden and other targets in

1-West Germany. VEATHER.—A striking feature of the weather for January was the marked contrast

nperature conditions compared with those of the same period of 1942. In January s year air temperatures fell to freezing point on only four nights, whereas ground occurred every night without exception last January and 28 degrees of frost recorded on one occasion. 19th January was 17 degrees warmer in London this tha**n in 1942**. These milder conditions in temperatures were by no means more favourable for

ing operations. The rainfall was above the average, with frequent strong winds gales. On a number of nights very low clouds or fog produced bad conditions on the Continent or at home operational bases. There were some falls of snow otland and in the North, North-East, East and South-East of England.

FIGHTER COMMAND.—Aircraft of Fighter Command flew every day and night of nonth. Sorties in protection of shipping were flown on every day except one and fteen nights. Offensive sorties were sent out on every day except two and on

en nights. Over 600 sorties were flown in one day.

ghter Command provided cover for twenty daylight raids by British or U.S.

er forces. Among the operations for which fighter support was provided were raids on the s at Cherbourg, St. Nazaire, Ijmuiden (2), Flushing (2), Lorient and Brest, the lds at St. Omer (2), Abbeville (2), Caen, Tricqueville and Maupertus, marshalling at Bruges and Abbeville, the Fives-Steel and locomotive works at Lille and the ct at Morlaix.

COASTAL COMMAND.—Aircraft of this Command flew continuously throughout the h. Offensive patrols were sent out on nine occasions and successful attacks on ing were carried out on three days and two nights. Aircraft of this Command

d with Bomber Command in the night raid on Bordeaux on 26th/27th.

Coastal Command anti-submarine and reconnaissance patrols over the Bay of Biscay were again disputed towards the end of the month, engagements with enemy aft taking place on 27th, 29th and 30th, four Ju. 88's being destroyed.

Army Co-operation Command.—This Command's aircraft continued offensive operagainst enemy transport in Northern France and the Low Countries, attacking

ay targets on eight occasions and damaging more than fifty locomotives and

U-BOATS AND SHIPPING.—Much of the effort expended by the three principal home mands was directed against U-boats at sea, in their bases and in production as well e communication and ancillary services which lie behind them. Many of the attacks e on land communications would affect the efficient working of the enemy's U-boat s and ports of call.

On 23rd January it was announced from H.Q. Eighth Air Force that elements no Anti-Submarine Command of the U.S.A.A.F. had joined with R.A.F. Coastal mand in a combined effort to harass and destroy German U-boat fleets operating the French ports in the Bay of Biscay.

Bomber Command assisted with anti-submarine patrols, attacks against shipping other means of transport and sea-mining, as well as bombing bases and production Digitized by GOO

res. In co-operation with Coastal Command, on every day except three, anti-submarine

THE ROYAL AIR FORCE OUARTERLY

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important submarine base in France. The existing pens hold third under construction would accommodate another ten an undertake major repairs. The base includes dry docks, power communications, barracks, etc.

Over a thousand tons of bombs were dropped on Lorient four night raids, 14th/15th, 15th/16th, 23rd/24th and 26th/27th
Harbour installations, repair shops, foundries, power statio
nected with the maintenance of U-boats—have been severely dan been devastated in the Naval Arsenal alone; welding shops, the building, drawing offices, store sheds and a whole block of the innaval barracks have been gutted or severely damaged by fin factories and small buildings, presumably used as control hous

and swing bridge have also been damaged.

A night raid was also made on targets at Bordeaux on 26th Day attacks on Cherbourg (15th and 21st) and Flushing (25th) Many of Bomber Command's night attacks on Germany

towns where U-boat components are manufactured, such as Dusseldorf. By day a new target was attacked on the 27th, the yards of at Copenhagen, where a submarine Diesel engine works is situated coming from the Diesel engine shed after the attack, made from a Another important factory making Diesel engines, attacked on Maschinenfabrick Gehr Stork at Hengelo. The Diesel motor st

fitting works have both been seriously damaged by direct hits and Nearby, two buildings of the Electrical and M been damaged. factory have been damaged. In an earlier raid the Stork factory bombs and it is now known that apart from direct damage some of glass was destroyed, reducing output by the black-out difficulti

The results of the U.S.A.A.F. raid on the U-boat base at St. have also been shown to have been effective. Sixteen bombs struthe U-boat pens were hit. Submarine and torpedo stores were the 23rd Brest was attacked by U.S. bombers and on the 27th th raid on Germany was directed against the naval base of Wilhelms Results of earlier raids have also been received: at Bremen a

on naval contracts in a Krupps subsidiary works was severely dama raid and the works suffered a 37 per cent. reduction of output as burger Schiffsbau, which has been bombed by day and night, are t their programme of ship construction; in the raid on Duisburg of 2 a chemical and metal foundry, brass and copper rolling mills and in the manufacture of heavy machinery, ships-boilers, etc., were dama Kabelwerk, making torpedo nets, telephone cables, etc., has been six acres of buildings almost completely destroyed and in six and a

other works there was roof damage. Sea-Mining.—Sea-mining results are difficult to obtain, but in reported, Kiel Bay was closed to all traffic for two days, the ferry bet and Gjedser was stopped for two days, a tug and a motor-vessel Belt, three small vessels were sunk or damaged in the Little Belt, ar sinkings were reported from points as far apart as Gdynia (Poland), was mined, and Bayonne. This month vessels have been reported

Fighter Command devoted 20 per cent. of its patrols to shipping the coasts of Great Britain. Many of the interception sorties flown object shipping protection. Aircraft of this Command bombed the

on the 3rd.

South Kattegat and off Helsinborg.

Coastal Command devoted some 85 per cent. of its sorties to the of shipping. The remainder of the patrols undertaken were either in against enemy surface craft or photographic reconnaissance, much ( naval purposes.

orwegian coasts, and on the 18th/19th by night. Coastal Command aircraft ook part in the night raid on Bordeaux on the 26th/27th. Sea-mining was also l out.

Bay of Biscay and led a cruiser to the spot to sink it, and that attacks were made perators or Hudsons on a U-boat pack, two individual U-boats and a destroyer. CANSPORT.—Apart from the operations against shipping, enemy communications d were attacked by Bomber, Fighter and Army Co-operation aircraft throughout onth.

uring the month it has been announced that a Sunderland found an enemy vessel

uring the month it was noted that goods trains carrying German war material nee and Belgium had been fitted with machine guns and light A.A. guns. omber Command Mosquitoes attacked railway targets in Northern France and

m on the 9th and the 13th, and Venturas made a strong attack on railway targets ges on the 26th.

ghter Command sent out sorties against railway objectives in Northern France, m and Holland on nineteen days and eight nights. More than 100 trains were

my Co-operation aircraft were active on similar operations on eight occasions, ade more than fifty successful attacks on locomotives and other railway targets.

addition to the attacks on the locomotives and trains on the railways the carriage agon works at Lille were most successfully attacked on the 13th. Photographs how that hardly a building of the Locomotive, Carriage & Wagon Works is

aged. Some twelve workshops and factory buildings, besides offices and stores, een more or less severely damaged; nearly 40,000 square feet of roofing has been d and additional large areas show the effect of blast.

the multi-bay assembly shop, an area of more than 10,000 square feet has been y damaged; a direct hit in a repair shop has destroyed or badly damaged an f 6,000 square feet; in the forge several sheds have been destroyed or seriously ed. There are numerous hits elsewhere, including a direct hit on the main

which was half destroyed.
the Fives-Lille steel and engineering works which carries out railway work ious kinds, eight bays in a ten-bay building have been partly destroyed over an f more than 20,000 square feet, and serious damage has also been done in the nd steel foundry there.

omber Command also made six daylight attacks on enemy transport centres during

nth.

mal traffic in the Low Countries was also attacked by Fighter Command on the 3th, 15th, 17th and 17th/18th and by Army Co-operation Command on the 12th, th. Military road traffic was also attacked on several occasions by both these ands.

RFIELDS.—Several successful raids were made on enemy airfields, Bomber Comselecting such targets on four days. During the attacks of the 13th on ille/Drucat airfield, seventy bomb-bursts were seen within the northern dispersal ncluding direct hits on aircraft shelters. At the St. Omer/Fort Rouge airfield bomb-bursts were seen in a dispersal area and five aircraft shelters received hits.

my Co-operation aircraft also attacked an airfield in Holland on the 3rd. NEMY ACTION OVER GREAT BRITAIN.—The enemy sent bombers or fighters over Britain on eleven nights and twenty days. In only two of the night raids did tal force exceed fifty, and on no other night did the total exceed fifteen. The number of enemy bombers sent over this country by night was less than the

r used in one of R.A.F.'s Berlin raids. ne maximum day effort made by the enemy was on the 20th, when sixty fighters d the south-east coast, twelve penetrating to the Greater London area. Fourteen

aircraft were destroyed on this day, five by Typhoons. On no other day did emy send more than twelve aircraft against this country.

88's were among the four bombers encountered on the oth, the first time for norths that these aircraft had been seen this side of the Channel. They were

U.S. ARMY AIR FORCES (Attacks on Occupied Territory) .-U.S.A.A.F. on the 3rd attacked the docks of St. Nazaire. C made a high-altitude attack on industrial plants at Lille and U.S.A. C Fight R.A.F. Bostons in an attack on the airfield at St. Omer. made an offensive sweep over various targets in Occupied Terr on the 21st two squadrons of U.S.A.A.F. Spitfires formed par bomber daylight attack on Caen, Tricqueville, Cherbourg and F squadrons of U.S. fighters took part in escorting and covering Terneuzen, Maupertus, Abbeville and St. Omer. On the 23rd Fo Dominion and Allied fighter escort attacked the submarine bases On the 26th squadrons of U.S.A.A.F., with R.A.F. and Dom offensive sweeps over Northern France and Belgium.

## MEDITERRANEAN FRONT.

MIDDLE EAST.—With only one exception, that of the 4th, offer carried out on every night or day during January. During the first half of the month, while the Eighth Army v

preparing to continue its victorious advance, all types of aircraf Command were continuously harassing the enemy's transport bombing his bases, harbours and airfields at Tripoli, Sfax, Tunis, Airfields in Sicily and on Lampedusa Island were raided and bombed.

On the 15th the Eighth Army, with the fullest support of the its offensive. By the next day the enemy had withdrawn from the position and the R.A.F. pressed home attacks over a large area enemy's forward ground forces. During the following week Alli out a continuous offensive over the battle area, our fighter-bombers many good targets on enemy transport withdrawing westward. Or on a large scale, they continued these attacks as far west as Ben

At night our bombers operated in force against enemy concentra

columns on the coastal road, bombing targets at many points arous the important air base at Castel Benito.

On the 23rd Tripoli was in our hands. During the whole of

Tripolitanian capital the R.A.F. sheltered the Eighth Army from

up a continuous offensive on an unprecedented scale. Perhaps one of the biggest contributions by the R.A.F. to this has been the unrelenting and shattering blows it has dealt at the and supply lines.

Perhaps one of the biggest contributions by the R.A.F. to victory has been the unrelenting and shattering blows it has dealt

bases and supply lines.

Massed day-bombing raids with escorting fighters, long-range for attacks by night, airborne torpedo attacks against shipping both ground strafing and fighter-bombing reduced considerably the chi

ments reaching the enemy.

The R.A.F. ground staff achieved new records in setting up air to enable our squadrons to remain in line with, and sometimes ahead army. In many instances the R.A.F. operated from right up at the grounds which they had plastered with bombs a few days, sometimes

ATTACKS ON MEDITERRANEAN SHIPPING.—On sixteen days and se of the R.A.F. and Allied Air Forces successfully attacked enemy su and merchant vessels off the coasts of and in the docks and harbours and Pantelleria and in the Aegean Sea. Medium bombers, torpedo

fighter-bombers, long-range fighters and naval torpedo aircraft took p tions, while reconnaissance aircraft kept up a constant watch for l Protection to our coastal shipping bringing supplies to Tobruk ORTH-WEST AFRICA.—During the month twenty-nine days and thirteen night s were made on enemy targets. on the 1st the harbour and failway yards at Tunis were bombed. On the 2nd esses, escorted by Lightnings, attacked La Goulette. A military camp at Sousse ne railway between Sousse and Sfax were also bombed. Hurricanes and Spitfires ed ground targets in the forward area. Allied fighters and light bombers ed armoured forces on the 3rd, and on the 4th bombers, escorted by fighters, Cherichera, north of Fondouck. Fighter sweeps were also carried out and the y yards at Kairouan were bombed. On the 5th Fortresses bombed shipping at

and the airfield at Kairouan were bombed. On the 5th Fortresses bombed shipping at and the airfield at Kairouan was bombed by B. 26's. On the 6th targets at uan were again bombed. The airfield and barracks at Gabes were bombed on h by B. 26's escorted by P. 38's, while light bombers attacked troops at Kairouan ighters made sweeps over the southern area. On the 8th B. 17's, escorted by 's, bombed Bizerta and Ferryville, and B. 25's attacked railroads at Kala Srira t Braiba. Targets at Gabes and the Kairouan airfield were also bombed. On the Hurricanes and Spitfires carried out offensive patrols. On the 11th B. 17's attacked the 11th/12th Bisleys bombed roads in the enemy's rear. B. 17's attacked the d at Castel Benito, B. 26's bombed bridges between Sousse and Sfax, and P. 38's d out offensive sweeps on the 12th. On the 14th Fortresses attacked Sousse and

d out offensive sweeps on the 12th. On the 14th Fortresses attacked Sousse and and B. 26's attacked targets at Mahares. On the 15th medium bombers and fighters and large schooner and attacked two escorted formations of enemy transport Road and rail communications were also attacked by medium bombers near On the 15th/16th Bisleys bombed road vehicles near Sfax. On the 16th ١. cane bombers attacked railway targets between Medjez el Bab and Tebourba. es, P. 40's and P. 38's made sweeps in the enemy's rear. Road and rail comations were attacked near supply ports on the 16th/17th and on the 17th. Targets Pont du Fahs were attacked by Hurricane bombers on the 18th, and during the ling night Bisleys attacked targets behind enemy lines. On the 18th also, the d at Castel Benito was bombed by B. 17's. Road and rail transport was bombed sleys in the Tuna-Sousse area on the 18th/19th. Fortresses on the 19th bombed cives in Tunis. B. 25's bombed targets at Medenin and P. 38's attacked vehicles the Tunisian frontier on the same day. On the 20th Hurricane bombers attacked es in Pont du Fahs area and fighters, including the Lafayette Escadrille, were in support of our troops. On the 19th/20th Bisleys bombed enemy's rear compations, Fortresses bombed Gabes camp, and B. 25's and P. 38's attacked a tanker attacked. Narrows. On the 21st Bostons bombed an enemy column in Pont du Fahs area, Hawks and Spithires carried out sweeps over fighting area, B. 25's (Mitchells) ted targets at Pont du Fahs, bombers and fighters sank a freighter in the Narrows, and between Gabes and Tripolitania were attacked by Lightnings. Bizerta airfield ail communications were attacked on the 21st/22nd. On the 22nd enemy vehicles M.G. posts were attacked by fighters and enemy tanks by bombers, Hurricane ers escorted by Spitfires attacked objectives at Pont du Fahs, three bombing were made on an airfield at Tunis, and a freighter hit by escorted bombers in arrows. On the 22nd/23rd bombers attacked an airfield near Kairouan and docks zerta, and fighters destroyed enemy vehicles on road from Tripolitania into Tunisia. ne 23rd bombers, fighter-bombers and fighters operated in support of our troops. s at Bizerta and vehicles on road near Kairouan were bombed on 23rd/24th, and e 24th the harbour at Sousse and an airfield near Medenin were bombed. On the 26th/27th Bizerta was bombed and on the 28th the harbour and railroad at Sfax were attacked. Bizerta harbour and airfield at Tunis were bombed on

### INDIA—BURMA FRONT.

excepting on the 6th of the month, the R.A.F. carried out offensive operations st the Japanese on every day or night during January, by Google
Objectives ranging from the North Arakan coast down to Pagoda Point, at the

oth, and Bizerta again on the 30th and 31st. Gabes airfield was bombed on the 31st.



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### THE ROYAL AIR FORCE QUARTERLY

Enemy river craft on the Chindwin, Irrawaddy, Kaldan bombed and shot up by cannon and machine guns. Coastal sh harassed as were railway and road transport.

Enemy airfields figured largely in the long list of targets, t

Toungoo and Meiktila receiving frequent attention.

Operating aircraft included heavy and medium bombers a mainly Hurricanes, besides carrying out extensive offensive sv for our bombers and covering support for our ground troops

### Aircraft Casualties.

In offensive air operations over Europe from home bases twe were destroyed. This total includes enemy aircraft destroyed fighter sweeps and fighter escort activities. Over Britain thir were destroyed, making a total of sixty-eight destroyed during based aircraft. In the course of all these operations the R.A.F.

Europe and two over this country, making a total of 122. The losses announced by Middle East Command totalled sixt destruction of sixty Axis aircraft. Of these four enemy aircraft based on Malta. Allied Force Headquarters in North destruction for January of 257 Axis as against 91 Allied, and sin North African campaign of 546 enemy aircraft for the loss of 2 India and Burma eleven enemy aircraft were destroyed for the loss

# "THE FIRST OF THE MANY

By Squadron-Leader D. R. Parkinson.

As the last uneasy months of 1937 slid toward Christmas it was d War was drawing inevitably nearer—"all Europe resoun marching feet." Hitler's tiresome ravings made shrill arpeg clangour of German rearmament. One by one our colleagues were They wanted to be ready to do some kind of stuff, and argued that be conscribed is not very much use for the first six months. Sev

went to the R.N.V.R., many of the car-driving, cricket-playing fr and the adventurous youngsters to the R.A.F.V.R. in search of t To men between thirty and forty the apparition of war is-of us have wives and children and we have spent a good many y careers. The rugger field sees us now as mere spectators, the g

insistently than it did a few years ago.

The problem was more tricky for those who had seen pre at the end of the last show, or in the early years of peace. Whe form of a spell in the R.A.F. we found no great leaning to the Wavy Navy we did not know the difference between a binnacle

In all our minds was a determination to get back into the R.A.F. b We stood awkwardly on the sidelines for a few more weeks, a of an Equipment Branch of the R.A.F.V.R. was announced in the State of the Research of the Researc Bureau had not been established) and procured forms of applicatio

appropriate pamphlet. Here perhaps was the niche into which we The next two months were exciting. It seemed certain tha large response, and we knew further that the medical standard wa were taken up, we were summoned before the Selection Board, sen and then home, to wait. Very soon each successful candidate recei appointment, and commencing on 12th April we were gazetted as A

on probation, in groups, at close intervals. At the outbreak of

One evening at the end of April we were summoned to Ariel House, and there our Chief Instructor, who gave us an outline of the work. First we were to take e lectures in six weeks and then sit for an examination. When we had passed to itisfaction we would be given authority to get our uniform. Lectures would con-interspersed with visits to R.A.F. stations. We were required to undergo een days' training each year and could choose our own times and the station to we wished to be attached. The C.I. advised us to go in pairs, and no one might until he had been commissioned three months.

Presently the C.I. broke off to speak to two men who entered and mounted the

orm. One was an immense, athletic type in a well-cut blue suit; the other small, eyed, flannel-trousered. The C.I. announced that we were fortunate because a Senior Officer had come along to see us and to say a few words. Every eye d to the blue-suited giant, but he stepped deferentially back and we realized that n can wear the oldest of flannel bags and still be utterly authoritative.

The following week we drew notebooks and began learning the principles of S Accounting. We drew diagrams showing the Form 600 procedure, and how an Officer should be able to convert hangers, coat, into hangars onneau, with a couple of Forms 21. After these lectures we got into the habit of ng to one of the Strand taverns to drink a little beer and get to know each other, e way Englishmen do. The C.I. made prodigious efforts to get us premises with ss attached, but arrangements were only concluded in the summer of 1939. ing date was in fact some ten days after the outbreak of war.

The examination took place, and the successful candidates were instructed to get uniform made by one of the approved firms. This was for most of us an experience niscent of George Sherston's visit to Craven & Sons. The peace-time inspection officer's kit is formidable and we soon put away any doubts we may have had cut and fit. The whole power, might, majesty and dominion of the British ire hovered benignly over the cutting rooms, a guarantee that every jacket, every

coat, would be timinious.

Fifty of us went to Uxbridge one July evening in a London bus to air our new rms upon the famous square. We were heartened on this and subsequent occasions ne discovery in our ranks of some brevets and gongs, including a D.F.C., but artened by the hundreds of erks at their barrack-room windows observing our Their presence was one of the many salutary features of the Uxbridge kes. itions.

During August we began to go off on fourteen days' training, some to Coastal. to Bomber or Fighter stations, a few to an F.T.S.
Two of the last arrived early in September, during break, and found the Mess

ted except for a skeleton staff who shook their heads and said it was quite the g time to come. The phrase wove itself into an anthem that was rudely terminated days later when the Munich crisis set England by the ears. Staff and pupils ed back from leave, tents sprang up in the lines, gun-pits were manned and general lization was expected hourly. A crowded Mess listened to the lengthy bulletins taut nerves, the A.O.C. flew to this, as to all his other stations. On the morning Prime Minister flew to Munich our friends had ninety minutes over North Wales n Oxford. He brought back a scrap of paper and so they were able to return ondon at the end of the week, to hang up their uniforms for another spell.

Lectures continued, and after each one a lengthy writing up of notes. Another sy winter began. In December we gave a dinner for the C.I. and his staff; it the only social gathering we had in seventeen months peace-time service. One he Instructors told that long, funny story (you probably know it) about the dibly dim type who went on being dim for about twenty years, so finally they him an Equipment Officer in the R.A.F.

When the spring of 1939 came the rapidly expanding R.A.F. was feeling the tage of Equipment Officers. Air Ministry asked the V.R. to accept six-month ods of attachment, and quite a number were able to do so Others went on "X"

ses and qualified before the outbreak of war.

for us to be scattered to all parts of the U.K. In a number of the Old Lady of Kingsway had attached V.R. officers to her contingency none of us foresaw. For these types a queer and behind a letter and a number; they were not to know the excite station, with the noise of Merlins and the faint smell of dope They confronted the Chief Instructor and said: "Look, sir, us, I mean . . ."—but his face showed there was nothing doi

swerved and plunged toward the abyss. And on 25th August our by post, quite quietly, through the letter-box like any bill. We cleaned our buttons and set off on our journeys to wherever we

Cleaned our buttons and set off on our journeys to wherever we We had just over a week to shake down, and on that first September we were all at our posts. From the far North of the Welsh coast to Cambridgeshire, on stations, at Group quarters, and in the Air House.

There's not much danger in it—certainly no glory. We are hands who lurk in the wings while the G.D. people are giving a play!

a play!

Yet, within our narrow and well-understood limits, we have of pride. We are glad we sweated through those lectures before

to have been ready, trained, as the R.A.F. can train willing bloke our weight and not to cause a raised eyebrow by our conduct as And if anyone thinks the title of this article is cheek, they again to the Air Force List—278 does not go far in that crowd, diget tired of counting them, half-way through the Flying Officers?

# "JIMMIE COMES HOME" \*

By DEREK BARNES.

I showed this story to some of the boys, because I thought it had a Two of them felt it was lacking in action. The third said: "I like don't think many other people will." But the concensus of opinion bung it in the book because it takes all sorts to make a world."

So here it is.

The farther away from home I find myself the more the yellow cheeks of my baby son are in my heart and mind. Thus, in the have sought for treasures on his small behalf, ranging from a colle "chocolate fancies" bought in many a Mess, to an infinitesimal

gloves which I found in a shop in Lerwick. And once, in Grimst landed myself with a white mouse.

The Saga (for it is little less) of that mouse and my return wit.

of this simple story. I daresay it was the first and only mouse of ever to enter an R.A.F. station, let alone to be fed by the bomber return from the dark horizons, with crumbs from the biscuits with wh their hunger while we wrestled with the interrogation.

It may well, come to think of it, be that no other mouse he Grimsby, in the heart of winter, dangling in his cage from the handle

bound bicycle.

The discovery of "Jimmie"—although I was then ignorant of would come to be—was the culmination of a search which had been fail from town to town, as my base was altered. In Canterbury, in deser Ramsgate, in war-torn Dover, in Louth, in Maidstone, in Lerwick a

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### "JIMMIE COMES HOME"

zen other towns, I had spent my off-duty periods with half-an-eye cocked for a mouse, complete with cage.

And, at last, in a long dockside street, amongst ship's chandlers and slop shops, and a white mouse for sale, complete with a white-wood cage with a revolving ament the like of which I had not seen since boyhood, all too long ago.

The price of this white and trembling morsel was ninepence and that of his ssive cage was three-and-six. If this ratio reveals some great universal principle, hich is thus assessed a man's cash value by that of his house, then my own living ss—I estimated—is worth £625, which seemed to be a little on the high side in of the pay of £221, the rate at which the Royal Air Force valued all my time, ng and sleeping, as a Pilot Officer per year!

t was whilst I was counting out the price of Jimmie's little body and soul, stooping oid the sea-boots and storm-lanterns and other gear which dangled from aloft in numble yet exciting shop, that I felt the first stirrings of self-consciousness at thus g a mouse whilst both adult and in uniform.

Dismissing the temptation to suggest that I wanted the mouse for experiments oxygen shortage at great altitudes, I murmured: "My kid'll love this!" as the I was handed to me, wrapped neatly in a lurid pink cover of the Police Gazette widdling from a convenient loop.

Now, to my faint awkwardness at the possession of so strange a parcel, was an undue anxiety as to the welfare of the contents.

Were the holes in the paper large enough for ventilation? Were they, perhaps, arge in view of the snow outside? Would that frail and trembling creature stifle e foul air of the cinema which I proposed to visit, or die upon exposure to the when I came out?

Nursing the parcel, lest Jimmie should be overcome by vertigo if I held it by the I ducked my way out of the shop and braved the grey chill of that winter noon.

t was surprising how many friends and acquaintances I met. On my few previous I had "wandered lonely as a cloud," longing, in those alien streets, for company. d always fed alone in the Ship Hotel; eyed the shops alone and finally, and in air, sought the cinema in my loneliness, for there, upon the screen, were certain e a few familiar faces.

But to-day, when—truth to tell—I felt a little embarrassed and sought only to n in privacy, I met within the space of ten minutes a dozen acquaintances who, emed, suddenly knew me well enough to stop me and, of course, to ask what was a parcel. One, indeed, was a senior officer to whom I imagined my very existence, one my name, was unknown. But no! He, too, must hesitate as he acknowledged nouse-laden salute and say "Hello, Barnes—what you got in there?" And not afterwards did it occur to me that, to each and all, I might have truthfully replied present for my son." But, then and there, thus accosted in those bleak streets, blied, in complete embarrassment, "A mouse!"

Thus, I supposed, must many a criminal, secure in fact, but imagining his guilty to be writ large upon his brow, blurt out incriminating details to the first curious er-by. Of course, that insignificant parcel gave no hint of the pulsating and bling life within. But I felt then, as I remember with faint horror now, that thing about it shouted loudly that this tall Air Force officer had bought a mouse.

The uncouth shape, the punctured air holes in that vile paper, and—to my overtive imagination—even the fragrance which wafted out of those perforations, as chill Grimsby air went in, all proclaimed the nature of my burden to a ribald world.

I had by now decided, after much anxious debate between common-sense and tion that, whether or no the change from the soupy atmosphere of the cinema to knife-edged winter breath of the east coast would prove perilous to Jimmie, the ic voices of the film or the sudden crash of music might well cause that fluttering t to stop. I must forego, out of my regard for my protege, the shapeliness of Hayworth, the exhilarating crackle of American wit and the blessed spell of

etfulness afforded by the films.

of me and I was assailed instantly by qualms on account of the which my parcel underwent as it swung by its loop from the has whilst I yet rode upon the cleared streets of Grimsby, these beginnine, well-nigh unbearable when we ploughed the deep rose Frozen humps of snow, ruts hard with ice and the inevitable

Jimmie, well-nigh unbearable when we ploughed the deep roz Frozen humps of snow, ruts hard with ice and the inevital clogged wheels made my heart turn over in anxiety for my r After nearly an hour of this almost polar journey I was r an hysteria of distress on Jimmie's behalf; I was also physically of pedalling through those eternal and almost tractless seas of st a rest.

I put on my brakes and was at once flung full length in a wheels locked and skidded. So great was my anxiety for Jimm to shake the slush from inside my collar and sleeves I crunch snow to rescue that miserable mouse which I felt must by now The early dusk was dimming the already grey skies with a

as I salved that pink, pathetic parcel and unhitched the loop bicycle, now measuring its awkward length in the snow. The with gloves removed, I began to fumble with sodden string and anticipation I raised the catch of Jimmie's humble bedroom doo

For a moment nothing happened. The ball of chewed-up not nestled was unmoving. The whole countryside, locked fast in breath as I held mine. No stir, no rustle disturbed that four-inch from the crevices in the newsprint, there drifted forth upon the Lincolnshire a faint but acrid smell of mouse.

At length the paper shreds parted and there appeared a pin

At length the paper shreds parted and there appeared a pin. Jimmie was at least alive.

A second later and I had him in my hand. His tiny feet, pin warm as coals upon my freezing palms. He was alert and eage convulsed from snout to tail, with the vigour of his inquiring snill he was gone! I defy anyone to devise a more difficult search the mobile white mouse in snow in the falling darkness of a December

Now thus to squatter, in uniform, in the snowy highroad in is best done in privacy. So, of course, one of our station lorries a scene and, thinking I was either mad or had lost some vital par the driver courteously pulled up and jumped down to help. I expect the enfolding dusk, that for which I sought, and his commentafterwards—was perhaps illuminating. "Ah!" he said, as he searched, "these 'ere lonely billets do get yer down, sir! Do a company some fellers would!" And a moment later he shouted dived full length across the drift, with his cap over the shrinking J

company some fellers would! "And a moment later he shouted dived full length across the drift, with his cap over the shrinking J We made no attempt to wrap the cage again. We simply put lorry took Jimmie and myself and my bicycle back to camp. I whether the roar of the engine or the leaping and plunging of the

Jimmie or not. At least I was warm and had ceased to pedal. At longer twiddled like a top at the end of his string. At least we at the station.

"Never did go for mice in a big way, sir," roared the driver al his truck. "Perrots is more my line. Nice companionable things, pe

back, they will, friendly as yer please. An' swear—cor!"

Jimmie, I felt sure, was too humble to swear. I dumped him bedroom, thanking heaven that the other bed was not at present a had dinner and secreted bread, cheese and a few grains of cereal fr in my pockets. James should not go hungry. With some presence

palmed the top of a meat-paste jar to serve him as cup and bath com
In spite of his eventful journey he fell ravenously upon his supper
upon my hand. In that grim little hutment cubicle, devoid of any s
of the gracious life of England, this friendly creature warmed my hear

there came into that room the thought of other mice, all over this England of all down the ages, bringing with them a sense of peace and plenty and the nice of the old folk-tales of our rich domestic past. Mice, for me, have always harbingers of romance. They live and work their small ways in satisfying places. d the wainscots (almost as romantic a word as " arras") of old and sturdy houses; e grain stores of farm and mill; in fragrant apple lofts and silent stillrooms; in and cottage, tavern cellar and chandler's bin, wherever the good earth's produce, and wholesome, lies silently awaiting the pleasure of the farmer or the cook.

see their bright eyes peering from holes in cosy kitchens. I hear them stirring y, leafy ditches where the round nuts ripely fall, or rustling through the stable, with the moon in their whiskers, as they seek and nimbly handle the plump, grain beneath the giant feet of dreaming horses. uch a pageant of cosy and domestic recollection did Jimmie thus recall to my home-

heart that I was nearly late for my night duty and was obliged to thrust him is nest of newspaper so hurriedly that I nearly shut the little door upon his tail. Since an empty bed on an R.A.F. station may be filled at any moment, I hid the beneath my own bed, in a dark corner, and ran down to the Intelligence Office. officer whom I was relieving looked up and grinned as I stamped the snow off oots.

Hello! " said he. "I hear you've got a mouse!"

to the story had spread. The crews who came in before their midnight take-off new the story. The Controller nodded and said "Brought your mouse with you?" nobody seemed to think it strange that I should possess a mouse. Indeed, the seemed so disappointed at not seeing Jimmie in the office that often afterwards uld take him to share my night duty. In quiet moments I would let him run upon the desk, and he might be seen sitting on his hunkers in the "out" tray

some choice morsel in his precise pink hands.
At the close of that night's operations I trudged wearily back through the snow a sad heart, for one of our aircraft was missing and, at best, it seemed a poor of night to be sitting in a rubber dinghy on the North Sea. For this reason the e had gone from my mind when I opened my bedroom door. But it soon came

he light was on. There were somebody else's belongings about the room, ling a jacket with more rings than seemed wholesome for my mouse. Something y senior had, by some mischance, come to share my humble room.

Is very large behind, taut in vivid pyjamas, was even now sticking out from th my bed, under which I saw the glimmer of a torch. Hello, there! " said a muffled but not unfriendly voice. "You got rats? Some-

's been gnawing and grating and kicking up hell's delight under here! " And, from that dark corner, into which the questing torch was about to pry, I the unmistakeable sound of Jimmie whirring his little spinning wheel light-

edly around. I sprang into action.

Don't you bother, sir," said I. "Let me rout it out for you!" And I climbed the bed, pushing my pyjamas over the far corner on the cage beneath. At the instant I turned my torch full into that groping officer's unduly senior eyes,—as I hoped—blinding him while, from the bed above, I picked up pyjamas, cage

all and thrust them under my pillow. logether we probed that corner, our two torches flooding it with light, until it plain, even to his aroused suspicions, that no rat or mouse or any sign thereof

in that corner.

As I hung down from the bed I caught a glimpse of a plump and pleasant face

smiled up at me in friendly bewilderment.

'Must have baled out!' said he.

'Must have, sir!' said I. "Unless you were mistaken?'

Not a chance," said that kindly, senior voice; "why, you can smell the damn gran't you? Hey?"

Lemiled gingerly: "I believe you can sir nearly you meeting all."

"I believe you can, sir, now you mention it!" I murmured. smiled gingerly.

"Sorry to barge in on you like this," he said, as the groaned beneath the sudden impact of his weight. "Mess P one spare bed on the station—and this is it! Just up for a the morning. Good-night to you!"

"Good-night, sir," said I.

Later, when the light was out and my companion was a suitably senior snores, I returned Jimmie to his corner, having a match-stick and opened our window a little.

If the unduly senior officer ever reads this story as I have

If the unduly senior officer ever reads this story, as I hope appreciate it. The eyes which smiled at me, upside down, fr that crazy hour, were full of human tolerance and kindliness. qualities in common with a good many other senior officers o

Some days later came a precious "Forty-eight" and Jimmie He had quite a few farewells to make. Some of the crews w small hours as they waited their turn for interrogation or came Several Intelligence officers had also formed the habit of spendin with Jimmie. Maybe they, too, gained from his small present to the pleasant past.

But the Saga was nearly over. The chase which began so long ended: the trembling trophy was nearly home after our many adventures. He made the last stage of his journey upon the carriage, and was met at the station by my wife and our yellowround eyes fastened instantly upon my ungainly parcel.
"Here's something you've wanted for a very long time, Mart

it very carefully.

And so Jimmie came home.

With great excitement the small boy opened the parcel. I fitting finish to the Saga. He stared in silence at the cage for a his chubby hands opened the bedroom door.

"Coo!" he said, as the occupant stuck out his snout in wanted a clockwork one, reely!" And he added, "Doesn't he sh

# **IOTTINGS OF A NIGHT FIGHTE**

By Flying Officer W. Thomas Cunningham.

Whar is the thrill of this flying game?

It is the excitement when the throttles are pushed open and being hurtled over the ground, faster and faster, when you aband power of the engines, anticipating the time when you will become also the end of your patrol when, with the flarepath ahead, you be see the familiar lights and know that over there—though you cannot is where you cat and sleep, where after the loneliness of the dark sky taces, a bright fire, the smell of cooking. Sometimes it is, perhi detachment and remoteness from the earth when you break into the moon above a woolly mattress of cloud. It is the chase, the mastery and over distance. It is a hundred other things dull and interesti exhibitating. It is a "bind"; it is a joy.

We spent many weeks partiolling and mapting before we contact day we would go up and do oning tests and each night begin our f

s fumbling with the Mae West straps, pulling on boots and struggling with hute **harness**.

Where's my helmet? Who's taken my oxygen tube?"

Then out into the darkness, someone lighting the way with a torch. The engines dready warming up. The slipstream nearly takes us off our feet as we scramble d. Willing hands are handing up gloves, scarf, maps; a mouth frames some ninute message of good luck though no sound comes above the noise of the es. A rapid check of instruments as the engines rev up with an almost unbearable

less than ten minutes from the word "Go" and we are in the air. The cloud is ing in a strong wind and scurrying across a rising moon.

Orders over the R/T: "Climb to operational height and steer due West." A mixture of fear and elation and we increase speed and steer for interception.

stile aircraft approaching Position D from south-east."

second—miles and distance matter no longer—each second draws us nearer to nemy. We make a quick speed calculation. How many seconds now and in part of our sky will he appear? We strive to pierce the darkness, eyes straining, pation and exasperation struggling with one another. For a moment the moon ns on some object entering the cloud half a mile to starboard and we realize we on his track. We increase speed, skim under the cloud, estimating the position sich he is likely to emerge. Or is he an old hand, and will he, sensing our presence, e us by changing his direction in cloud? In a moment he is slap-bang in front s, like a silver fish. A Dornier with his high wing and twin fins; no mistaking His tracer is passing above us like a trail of elongated sparks. The rear gunner got us against a background of cloud. We do a quick check turn, dive a little bull our nose up right under him and give him a long burst. He begins to do a climbing-turn prior to evasive dive. But we've got his starboard engine. A of cowling blows off, there is a long plume of grey-white smoke and then a die of flame, a further half-hearted stream of tracer, again gloriously above us, and he is dropping like a plummet line. There is a deep red glow in the cloud below

id a spiral of smoke.  $N_{
m e}$  pulled out a thousand feet above a sea as placid as our own lake in the evening. e was no sign of the Dornier. I remember wondering if I had won the rainbow one of the boys had caught, much to everyone's surprise, and which they were geless than half an hour before.

They never found a trace of that Hun. I sometimes wonder if he was so green. Yes, I had won that trout. But it wasn't fit to eat!

People are given to shooting an awful line about night-fighters. Night hawks, call us, men with cats' eyes who heap their plates with carrots and green vegetables. ' How many have you shot down recently?'' they ask you on leave, treating us oubt as modern Hotspurs. Could they but see us at the Lido! n rather sarcastically by other less-fortunate squadrons to our dispersal area. There our lake, beach and natural bathing-pool, it is in summer a veritable paradise—gh we lead an active enough life. There are our chickens, vegetable gardens and trees, our boat always in need of repair, a motor-boat in the building, clay-pigeon ting, and an occasional wild duck. Those first down of sailing with a high wind! number of duckings—especially of the Flight Commander, whose trousers got ht in the rowlock as he was thrown out of the boat and who remained upside down ing and spluttering until we could stop laughing for long enough to rescue him! d not take long to learn the value of Mae Wests.

Digitized by GOOGLE My birthday, and Harry sent me a couple of gramophone records. One of these, leisure seldom coincide. Reading is easier to get, though a chat round the fire with a tankard in your hand come easier.

Aerodromes are usually deep in the country. One man m is a single problem often not difficult to overcome. He lays looks forward to being independent of the usual diversions and a There is that outstanding correspondence, that new book on those two or three novels that are for ever in the category of brisk walks with short cuts and changes of direction if you li panion sometimes (and with a crowd always) fall short. A 1 vigorous men is another problem. On a non-duty night, when the by the afternoon's flying has passed off, a "quiet" evening do There is an urge for noise, lights and laughter. Then, perhaps, especially if there is a Hun to celebrate or a promotion—with Occasionally some of us do the long trek to the nearest pub as as for the beer, which at best is only moderate. Two old men of every night and watch us without comment as we play darts. fellow without any teeth, carries a bottle which seems much too he take this home to his wife? The other, a huge red-faced lab the other in by a few minutes. They say "Ah" to one anotle rest of the evening, sit in a silence broken only at long intervals by t

A bomber made a forced landing on our aerodrome. China ( first on the scene and were able to assist the bulky rear gunner out of "This is the hell of a game for the son of a parson," he s

throw everything up at you at Kiel except the battleships. The plane was badly shot up but, apart from an egg-like bu

head which he couldn't account for, no one was hurt. It was fr learnt later, that Harry was missing. These bomber boys do a A bad patch for the Squadron came on. We lost "Adam." gardener in civil life and left the mark of his kind and unassuming

upon our minds as upon our Dispersal, where he had designed and q rockery and gardens. He got his Hun, though, before baling out picked up, but of "Adam" there was no trace save an empty ding

In the next few days the C.O. and "Nobbie" met a Hun er to claim them as more than "damaged." We all felt rather im until Vic got two in one night and was back on the "deck" with

The Hun is very quiet again and we are doing more day flying leaving at a navigational exercises, formation flying, photography and "beat-up to be a navigational exercises, formation flying, photography and beat-up to be a navigational exercises, formation flying, photography and beat-up to be a navigational exercises, formation flying, photography and the navigation flying to be a navigation flying to be

Looking down on the clouds to-day the realization came to new world for poets and artists. I wondered how many the war of what quality. No mountain peak has so revealed the splendor no earthbound contemplation of the skies so filled the heart with i and stillness. From the gloominess inside cloud you are sudden clouds are dazzling white below you, sometimes gleaming like si

like satin in the moon. They stretch away beyond and beyond li times above their surface will point the black menacing fingers of These we have learnt in our explorations to avoid. We were placeder "with Jack and Joe See among some cumulus. It look huge bolsters piled one above the other, and the breaks and hole a giant alpland.

I wonder if, in his "Battlefields of Britain," the artist Nevins chastened atmosphere and clarity belonging to these upper region we shall be permitted to see the original It is well not to trust in the beauty of the skies. Nature often

in her loveliest colours and most subtle have inst

ew minutes she is able to change a well-defined horizon into a grey smudge, to he leading edges of your wings in thick ice at 7,000 feet and cause it to vanish 2000 feet. She can make the most alarming electric charges dart from propeller eless mast as readily as produce the delightful "Glory" phenomena when on of cloud your own shadow, ringed by a tiny rainbow, is seen travelling along you.

had never seen a Junkers 88 before—in the flesh. It was a clear, frosty night rk, and we were flying almost in formation before we saw him, a faint silhouette t the stars.

What do you make of it?" China whispered over the intercom., as if not to enemy overhear.

Looks like a Beau," I said.

e stalked it for quite a while trying to pick up some conclusive recognition feature, he dropped a flare to try and locate his target. He dived away as we gave him st burst in that uncanny light and was lost for a few moments. Then he was us, evidently thinking that he had eluded us, and turning back towards the of the flare. He was preparing to bomb. A second burst at 500 yards and he cill flying level. There was no return fire that we saw and with nose down to speed, and throttles open, we closed in. The Jerry exploded before our eyes ere shaken violently and flying through burning debris with our perspex steaming il—not our own, fortunately, it proved. There was a nightmare of whirling stars ich we were thrown about, now drawn into the seat and now lifted out of it. den stillness and the craft began to shudder. Nose down to avoid a stall. The den stillness and the craft began to shudder. Nose down to avoid a stall. The lying panel, gone completely haywire, had now settled down and we were at ying straight and level, and beginning to breathe again.

hina is irrepressible, insatiable. We were sighing relief at one another as we do over our instruments when: "Quick, reload, there's something in front." elease straps, unclip oxygen tube, swing seat . . . I was groping in the dark the magazines, hands trembling, tearing my nails as I forced them into position ocked the guns.

ur target was jinking. He had seen us and was obviously trying to throw us We did a series of tight turns while I was trying to scramble to my seat. Then him against the dim glimmer of the sea, four engines and high tail and knew or a Stirling.

here was a note of disgust in China's voice: "O.K. We are going back. What's urse?

have never returned from a flight and been so comforted as I was then by the of our own circuit lights, by that kick the wheels give as they lock in place, hushing of the engines as we throttle back to come in and by the bite of the on the tarmac as China makes another of his wizard touchdowns.

e draw up at our own bay, give the engines a final rev. up which leaves us in nce only the deaf must know. The ground crew is scrambling over the aircraft, ag the hatches and helping us out with our kit.

Any luck to-night, sir?"

hey are as keen that the machines they tend each day and whose habits they have to regard (often) with affection should gain victories as the men who fly them. he earth never was so firm. There is an intelligence report, a fried egg, os, and bed.

# A PACKET OF SEEDS\*

By Derek Barnes.

The six Hurricanes of "B" Flight made a circuit in two "vic astern and came in to land, single file, so to speak. I was how usual vantage-point, seeking signs that any of them had been it its guns in anger" as the saying went—in order to run acrointelligence report the moment he touched down. This, however a peaceful patrol. Not one of the aircraft had its gunpatche soul had fired. So I walked over the green spring grass to our whose Hurricane swung round into its parking place, the roar ceasing, even as I came alongside. I clambered up on to the stuck his head up out of the cockpit. He waved a hand in the ame that there was "nothing to report." He unplugged his the state of the state

mask, shrugged himself out of his harness and, as he jumped of ground he made the pilot's inevitable first request: "Got a cigal We strolled together back to the dispersal hut by a round traversed a thousand times before. But now he seemed to be time. "Hell!" he said, "this is a mucky place, isn't it?" If the moment from those high-speed, high-altitude, split-second case often absorb the fighter pilot if he is to live and kill, seemed peaceful things. Perhaps the uneventful patrol, or the gentle will day, had caught him off his guard. He surveyed, for an instate of clay upon the green turf where shelters and blast walls he around our hut. He glanced with gentle disgust at the gaping crater or two had imposed upon the green symphony of spring.

around our hut. He glanced with gentle disgust at the gaping crater or two had imposed upon the green symphony of spring.

"I wonder," he said as he stopped for a moment, "I wonrustle up a packet of seeds from somewhere?" And he added, a

"A few flowers 'ud look a treat!"

Now "Butch" was short for Butcher-Bird and he had come the result of a certain action in the Battle of Britain, during wl not been preoccupied with planting seeds, though that is another s stuck and he was indeed a "killer," as the enemy well knew. O the devil and, upon casual acquaintance, you would not have th

spare thought for gentle things, even when his feet were firmly or

fighting, hard drinking, hard living. He was hard as nails, he v and soul. Or so he would have you think.

And now he was asking, rather wistfully, whether someone cou

And now he was asking, rather wistfully, whether someone cou of seeds. And, of course, "someone" meant ME.

I never tire of saying that an Intelligence Officer should also

nursemaid, secretary, wangler, letter-writer, stamp-provider and a every pilot in the squadron. They have, you see, so little time.

So I said, "Sure, Butch, sure. I'll fix it!" in the pseudo-Ar loved to affect as part of the illusion of his toughness. Who wa

loved to affect as part of the illusion of his toughness. Who wa When a guy finds some kind of a formula, however childish, to hel has to face in this war—good luck to him, say I.

Now that gang of hard-fighting, two-fisted, aerial Gun-men-

believed itself to be—fell upon my few packets of seeds from W energy that put to shame the very birds in spring. Officers, serge crews, orderlies, clerks, all flung themselves into the fray with tool goodness knows where. More seeds appeared. Marrows and run were added to my floral fancies by those with more practical mind latter belittled the flowers, mind you. They felt, so they told me, to

planted round the back of the hut they might climb all over the damn thing and ecent job of camouflage whilst providing a few delicacies for the pot.

which I had successfully avoided for forty years!

ne scars of clay were decently veiled in fine, sifted earth. A forest of little wooden appeared in the ground, marking what floral miracles should appear—and where would come back from bloody actions and, on their way into the hut for interro, would pause to inspect the progress of their seeds.

ne litter, rubble, flints, and cigarette packets disappeared from round our hut. A ras planted and protected with strings and sticks—to ward off sparrows and airmen I even saw "Butch" trying to prick out tiny seedlings with his ham-like fists. I mortals struggled to invite the fairies to their door, those fighter-boys did.

at, of course, it didn't last. Bit by bit the slovenly needs of man overwhelmed ow miracles of Nature.

he shortest route to the squadron's aircraft lay bang across that future lawn. a week it had been trampled into a sea of mud by pilots racing for their anes whenever a "flap" occurred.

ne N.A.A.F.I. Mobile Canteen which brought our "elevenses" each morning arked on a spot which made the mound over our shelter an ideal seat—seeds seeds. The neat path, the narrow beds, the whole potential of greenery and went the same way as the unborn lawn. Stamped to death by the hurrying the very men who had schemed and toiled to create them.

on every trace had vanished and the pilots who, amidst their sterner visions, camed for a moment of the coming of spring, again spent all their waiting hours in dy and depressing chaos. They were hard put to it even to discover a patch n green where a chap might lie and dream and chew a grass-stem for what might to be his last hour.

e tried again, half-heartedly. We bought more seeds. We printed hopeful—"Keep off" and "Seeds coming up." But it was doomed to failure. And, Is I was pondering the problem, the Squadron was moved—a hundred miles away. It our "one touch of Nature" to some heedless newcomers who would never what tender miracle had so nearly graced and veiled the wounds of the green round their hut.

• • • •

at autumn I had occasion to go back to that station for a single day. I had me to spare. Yet something obliged me to cadge a lift in one of the station and trundle across that vast aerodrome to the hut that had once known all my hours. Of the boys who had been my good companions, who had inveigled o gardening, who had striven to bring spring to their very door, five at least ow killed. Of the remainder, four were "overseas"—that vague term which clude Burma, Africa, Life or Death. Others had been posted to different ons. The Gardening Gang was broken up, as had been the promise of its work. It something yet remained. On the top of the muddy mound which roofs the on shelter I saw, on that late autumn morning, a bedraggled yet surviving ld—or "Calendula something-or-other" as I remembered the gaudy packet had d.

en as I stood at gaze, with a heart that surprised me by its undue reaction to so a stimulus, a young figure topped that muddy mound by "Hello, sir!" it called; I help you?" And he leaped gaily down that slope towards me. As I shook

#### PORTRAIT OF THE "BLACK P

By DEREK BARNES.

Whatever may be the popular conception of the appearance pr nobody—to my eyes—could look more poetic or more romant

He wore his hair unduly long for an R.A.F. pilot, and he way it set beneath his cap. It was strange to see this he prinking and preening with wisps of hair before the glass. It as the raven's wing," as the poets say. And beneath those el saturnine face. "Handsome enough to haunt you," as a girl o

Dark, straight brows; aristocratic nose; stern yet beautiful l that flushed only when he was most deeply moved. His brow to seem black. Their hard beauty set a finish to that remarkal depths I, who lived for so long beside him, saw no flicker of a

He was, perhaps, reminiscent of a Spaniard of the most a bearing. He affected something of the manner of the Fop, the visualize those sensitive yet ruthless features, that dark, patric from the rich frames of historic pictures; beneath the wig o the plumed head-dress of the cavalier, or above the ruff of some

When first I met him I fell into the error of thinking him ef I had seen him fly and fight and command men no less cours christened him-in my own mind-the "Black Prince." From he died I thought of him by no other name.

Apart from his saturnine yet romantic appearance he was dissensitive and flexible hands. They were reminiscent of the nervy gent insect. They were the hands of a violinist, of a conj conductor. And he possessed, too, the most remarkable sense of and timing.

This combination made him the most delightful billiards p made his driving of a fast car into a performance worth the w elbows into his sides and his arms seemingly unmoving—those would flicker over the levers, wheel and controls, coaxing the last

from the mechanism which, under his sensitive control, seemed You can imagine, therefore, how super-excellently he flew Like an artist, creating new graces of movement in the skies. whose enchanted touch that three-ton aeroplane would swim into I beyond the designer's dreams.

Since he was indeed an artist there was none to grudge him ment which, from time to time, clouded his very soul.

Yet, for all his sullen handsomeness, for all his dark moods a aloofness, he was a good companion. His temper he lost only wit moods he wrestled with alone. With his comrades of the Roy

forever patient, gentle, companionable. The plodding ground c aeroplane would slave joyously-to see their patient handiwork le master hands.

But his dark hours were the very devil-and from these depth but two methods of recovery. When in despair he would, at the first opportunity, break all

alone with his Hurricane to indulge in a twenty minutes orgy acrobatics. So great was his artistry that all of us could tell wh att. "There goes John," we would say, "working it off as That snarling plane would be thing, like an angry yet gracefi

sky in a series of thient, faultless, rhythmic rolls, and at a height it mind or hand faltered for an instant in their accuracy. Where all, would appear to lug their aircraft through such violent evelutio 1 to coax his screaming Hurricane so delicately that one felt it must be done by secret persuasion of the mind rather than by any mere manœuvre of the muscles. e would fling off an arpeggio of aerial contortions, a superb frenzy of breathless tics, all with the ease and grace which made the work of this master as individual t of a painter. At the end he would land, as fastidiously as a cat upon a wall, is dark hour ended, his black mood dispersed. Purged and purified, he was again d companion.

rould weather, or the disapproving eye of the Station Commander, or other hazard nim this necessary outlet—he had another. And the day came when he had to dry both these sources of refreshment before his mood was eased. As you shall

e nursed at that time one supreme ambition—to shoot down a particular German, who, he was convinced, was daily flying in the very area which the Black himself patrolled. He would sit by the stove in the hut, during the long hours Readiness," dreaming of this super enemy in his Messerschmitt 109, and planning ompass his destruction when at length the fates should let them meet. He spent upon hours in contemplation of this foe. He gathered, from God-knows-where, s. books, papers, stories of the German Ace and his aerial tactics. He studied forestalling in his mind every trick and airy gesture that the German might

the day came when they passed each other in the skies—within fifty yards. The Black Prince was, on that occasion, the leader of a pair of Hurricanes ling on a cloudy day. The controller on the ground had directed them up and give them height and position to attack a pair of Messerschmitts whose position if plotted but which were, so far, invisible to the British pair. It the moment when the controller thought he had them ideally poised for attack, and intervened. When they broke clear of it the Black Prince saw the enemy a second of a mile away beneath him and streaking back to France as though the day.

r of a mile away, beneath him, and streaking back to France as though the devil n their tails—as indeed he was!

he start was almost too great. In a screaming power dive the enemy strained ep his lead. But the Black Prince seemed to conjure extra speed from his cane. Then he found that he was outstripping his "Number Two"—a less enced pilot whose first operational flight this was.

o, though it broke his heart to do it, the Black Prince made the most princely e of his life. He throttled back to keep his sergeant pilot company and watched esserschmitts vanish in the haze. In one of them was the Ace of his consuming

Couldn't leave the feller stooging about by himself in broken cloud," was his getic excuse for not having got his man. "Better luck next time I get a crack," he added, trying to force a grin. But his lip was quivering like a baby's. The mood was on the way. I could see its clouds engulfing him, even as I jotted the last few words of the interrogation report.

the last rew words of the interrogation report.

the sergeant pilot added his comment. "My God," he said, "I hope the conwasn't listening when the leader let fly on the R.T. Never heard such language
life! I was pushing the old crate for all I was worth—but the leader, he pulled
in fifty m.p.h. out of the bag. Dunno how he does it. Wish he'd pushed on,
h. I was quite O.K. 'You go on,' I said. But he wouldn't listen. So the
got away."

few minutes later a snarling roar low in the sky told us that the Black Prince was
king it off" in his gyrating, falling, plunging, rolling, flicking, corkscrewing
tane. He put his usual full-stop to this inspired performance by landing with
our perfection. But the black mood had not gone. So dark was this darkest

ous perfection. But the black mood had not gone. So dark was this darkest his dark hours that he must needs have recourse to his other remedy. He eared the moment he was released, rushed to his bedroom with a brow like

er and shut the door. ome thirty minutes later I had to find him for some reason. I had never been to

# AND THE AMERICANS CAME TO WE By R. A. ABBOTT.

On most maps of West Africa Takoradi either is not shown at with Sekondi in very small print.

Until the early 1930's very few people other than those interest in West Africa had ever heard of Takoradi. Then the the time, Mr. J. H. Thomas, went out to open the new two-the best on the West Coast, performed the official ceremony, malaria, just a few hours after he had expressed his amazement

spot should ever have been associated with the name "The Wh Takoradi became a very valuable port for the West African t

products as gold, manganese ore and cocoa beans, but the ave knew the names of no Gold Coast towns other than Accra and J The French air-line, Air France, began to operate small fly and Lagos via Dakar, but there was no regular British serv February, 1036, Imperial Airways began a service from London but it was by the roundabout route via Khartoum. This service key port and Nigerian capital city of Lagos in October of the sam the British flying-boat "Cambria" completed a 20,000-mile surjected African route, and in October the "Delia" inaugurated

opened a service between Freetown (Sierra Leone) and Bathurst would be the link between the two services, then terminating at In October, 1938, British Airways made a survey flight from Londo projected West African and South American services; in December survey as far as Bathurst, but it was not until April, 1939, that Impe l'akoradi on to the Empire air map-just a little more than fou

Lagos to Acera. A month later a British Airways ground surve Africa. In June, 1038, Elders Colonial Airways, a subsidiary

went to war. West Africa did not figure very prominently in the news durin of war, but then we found that Italy was against us, and thus the M highly unsafe for our air lines to the vital, Middle East theatre o to be attacked by the Italians wife not the Cermans. Something had

and it was done almost as quickly British Overseas Airways, t

n sun; aircrews flew the completed aircraft across Africa; in Egypt they handed over to colleagues who flew them over Libya; British Airways and the R.A.F. unication-planes brought the ferry pilots back to collect more aircraft—the job bigger and still bigger, yet the great mass of the British people still knew nothing, ere of necessity kept in ignorance of what was going on in "Darkest Africa." ionally little snippets of information found their way into the British Press, and not the B.B.C. news, but they came from American sources.

en, in June, 1941, just a week before Hitler attacked Russia, Mr. Averill Harriman, resident's "Lease-Lend" administrator, came from the U.S.A. by air, and soon

ards Lockheed Lodestars night-stopped on the way to Egypt.

arly in August the first real indication came that America was going to take a -Mr. Gledhill, vice-president of Pan-American Airways, accompanied by Mr. e, of British Overseas Airways, surveyed the route. A few days later the B.B.C. nced that Pan-American Airways were going to operate a landplane and flying-ervice between the U.S.A. and Middle East, via West Africa.

was early in September when the first United States Army Liberator landed at adi, after flying the South Atlantic. It carried important passengers, headed by all Brett, chief of the U.S. Army Air Corps. It flew on to Cairo, where General conferred with the A.O.C. in C., R.A.F., Middle East, and made personal investing the servicing and military value of the American aircraft in use there. Three later the Liberator personal protection and the bad had been serviced as a Telegradian and the service of the American aircraft in use there.

later the Liberator returned to Takoradi, but without General Brett, who had to London. After delay, due to weather, Colonel Haynes flew the machine off direction of South America, setting up a world-record for a non-stop flight in ht: Takoradi (Gold Coast) to Brazil, 3,400 miles, in less than fourteen hours.

arly October, and Mr. Gledhill was again at Takoradi, flying from the U.S.A. mall convoy of Douglas D.C.3 and D.C.2 machines. With Mr. Gledhill were eorge Kraigher, who was to be the Operations Manager, and Mr. Yeomans, the al Manager of the Pan-American Airways African service. They, and their

nes, had come to stay, and they were itching to begin the service.

ne Americans set up their Headquarters where there was a good airfield, plenty of for Pan-Americans to make their own home, and where they could look after the of the American military aircraft, now flying over the Atlantic in ever-larger rs. Takoradi would remain the focal point of the service, however, because it the tere that most R.A.F. personnel and equipment were disembarked.

though there was no ceremony, 21st October, 1941, was a day of great importance history of trans-African aviation, for on that day the first scheduled Pan-American left Takoradi for Cairo, carrying 5,000 lb. of freight and one passenger.

earl Harbour had not yet happened, and America was not at war. Everything one under the ægis of the Lease-Lend Act, though hardly anybody really underhow "Lease-Lend" would work out from the accountant's point of view. But y worried about that very much—there was a job to be done—Pan-American had craft and organization.

berators continued to arrive with important passengers, travelling to and from ddle East and Russia; an American pilot went back to the U.S.A. on leave, and

home in California within four days of leaving Takoradi.

nen, on Sunday, 7th December, 1941, everything changed—the Japanese had ed Pearl Harbour and the U.S.A. was at war with Germany and Italy within ight hours. It was really America's war now, as well as ours, and very soon the eliable route to the Far East from U.S.A. was via Africa and India. The cans really got down to it.

ecially chartered ships came to Takoradi, laden with all kinds of necessities and es for the American Headquarters and the out-stations. Flying Fortresses of the pattern B.17E. were flown over—they were to get to the Phillipines if at all le, or, failing that to Malaya or India. American pilots flew Blenheims from add to Rangoon; their headquarters became a "Little America," where you could precion canned food buy "Camels" and "Chesterfield" at its, for fifty, and

THE ROYAL AIR FORCE QUARTERLY

American staff were working with R.A.F. and British Airways of keeping the service running at peak efficiency.

We and the Americans thought each other a little strai

inclined to be impatient with regulations with which we had little stodgy to them, but we soon sorted each other out, and side had known about the other's ways, how much we had in c with the superficial differences. They got into the British hal smoked "Player's"; we put "Esquire" drawings on the wall "Camels" and came to like Glenn Miller records. They disco men speak with neither an Oxford nor a Cockney accent; we lea

the New Yorker have neither the same accent, nor the same We were all doing the same job—beating Hitler. In doing

to understand each other.

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# WITH THE R.A.F. AT TAKORADI, GO 1941-42

By R. A. ABBOTT.

I FELT no thrill of pleasure that morning when the Station Com had been posted to Takoradi, on the Gold Coast, that I would p

days later, and that I must be at Uxbridge the next morning. Takoradi, Gold Coast—I knew very little about the Gold Coast that been called the "White Man's Grave." I knew that the

Accra, just a name out of the school geography books; I knew extremely enervating and generally dangerous. I knew that the no of heavy shipping losses, but there it was, I was posted to T Commander had outlined the job I would be doing; it was into the then highly secret W.A.R.R. (West African Reinforcement

route across Africa, to take the place of the former Mediterranea to the Middle East. If, as seemed probable, I was not to fly w

war, it might at least be something to have seen service in West. I reported to Uxbridge. Four days later I went north to the sail, but was surprisingly given three days' leave, which I spent la place to place, saying good bye to people—then back to the graphed and filling up forms for a passport which was never is advance of pay, buying a few items of tropical kit to suppler Uxbridge, and making enquiries about this and that at the Adj an evening in Manchester, a Sunday afternoon stroll, labelling

baggage, a night train journey to Scotland, boarding a ship, unpa a few hours later and boarding a lighter in order to change ship in the lighter, a decision that it was then too late to change shi to the original ship; off again very early the next morning and rea this time, two hours ashore during the afternoon, three days lying shore leave, four mornings when we wrote "last" letters, and for

On Friday, 21st March, 1041, the ship's engines came to life: the boom, into the open sea with the naval escort (a reassuringly days at sea, three days at Cabraltar, on again, then the order that April, tropical kit would be worn; everybody extremely embarras tropical kit, feeling toolish and uncomfortable in topees and sho

disombarked; three days at Freetown, on to Pakoradi, the ship empty and liteless, the weather far too hot for us to sleep in our xo we slept on deck,

On Sunday, 14th April, workervort at Daladi. It had been a v no serious submarine seares, no attacks by aircraft, the best of fo

and we were at Freetown, where many passengers, including the Ar

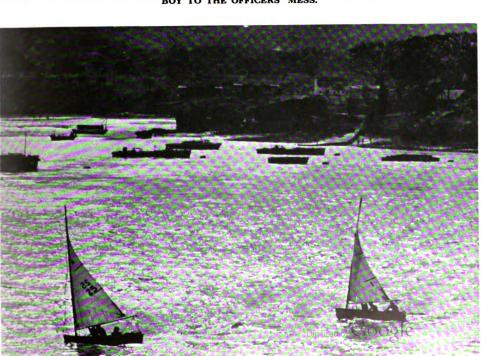


R.A.F. IN WEST AFRICA.



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OUTSIDE THE MUD CHURCH: THE PADRE AND ANOTHER OFFICER CHATTING TO THE CHIEF
BOY TO THE OFFICERS' MESS.



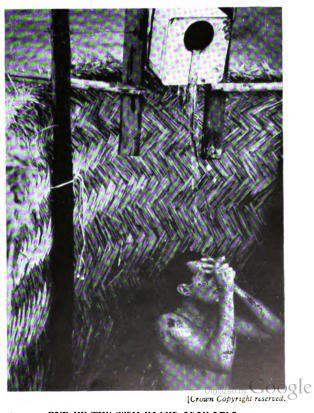








TWO OF THE MAINTENANCE CREW MAKE GOOD USE OF A RUBBER DINGHY.



#### WEST AFRICAN SUPPLY ROUTE.



"... THOUSANDS OF NATIVES CLEARED BIG SPACES IN THE JUNGLE AND EMERGENCY LANDING GROUNDS FOR THE AIRCRAFT.



F.

ibly brilliant moon and stars, a first sight of the Southern Cross, all of us have many new friends, and in some cases romance has blossomed. We are in many sorry to leave the ship, but it will be good to be able to unpack, to settle down least a semi-permanent kind of existence.

this was Takoradi. From the deck I could see a few modern buildings

ning white in the strong morning sun; there were the masts of a radio station, was an attractive bathing beach, a large harbour, railway sidings and good wide
It was all a pleasant surprise—not the "White Cargo" scene of mud huts

egradation.

e went ashore, and it was strange to have solid earth beneath our feet instead waying deck. We were driven in an open-sided Ford van to the Mess, and the of the spacious white building was another surprise. Two or three pink gins, cellent lunch, and I was taken to an adjoining bungalow, where I was to live. wo native houseboys introduced themselves, set to at the job of unpacking my

ge, and I was soon off to the beach with a small bathing party.

he water was beautifully warm and extremely refreshing. We were in fine form on the flower-bordered veranda, had drinks and talked of the voyage. We did ay up late that evening. Our first day in Africa had been very pleasant and the ses had been welcome ones.

hat night I slept for the first time under a mosquito-net. In the morning I was ned by houseboy Gabriel tapping on my pillow, and I saw that he had brought ly tea but slices of orange. During the ten months I spent at Takoradi I became omed to having unlimited supplies of delicious oranges, bananas, grapefruit and ples; but it was then a new experience, now a thing of the past.

began a new way of life in new surroundings. Beginning as a novelty, it soon e a routine, the normal thing. As time went on my duties at the aerodrome d my getting up before daybreak. I moved from the bungalow to the Mess g. Gradually I found that I needed more rest, but I did not get malaria or ery or blackwater fever; I did not get sunstroke, I was not bitten by scorpions snakes, or by barracuta. Many people did get malaria but quite a large number ot; some had dysentery, occasionally some unfortunate airman would be bitten corpion, but I never once heard of a serious snake-bite or of anyone having been ted by shark or barracuta.

had been at Takoradi about two months without ever seeing even a live scorpion, began to wonder whether there were any. I decided to ask the houseboys about y would know. Senior houseboy Ben grinned incredulously when I told him never seen a scorpion. He went outside, and after about five minutes came back large scorpion that he had just killed only a few yards from the bungalow. was how it was. Weeks would pass without anyone in the Mess catching malaria, omebody would not be in his usual place at the dinner-table—he had been taken pital during the afternoon. Perhaps someone else would fall a victim within a so—they came back into circulation after three or four days, a little shaky after rge doses of quinine which formed the most important item of treatment for

a, otherwise little the worse. o anyone accustomed to life in a large English town social life at Takoradi could t seem very limited. There were, of course, no theatres; the only cinema was shackle affair in the neighbouring "town" of Sekondi. This cinema was a kind

exe to a hotel run by a Greek, and every week there were special shows for the .; transport was provided by the Station M.T., but one visit to this cinema was h for me. The "screen" was a whitewashed wall, making the film most inadey visible; there was an interval of several minutes after every reel while the film wound—there were several impromptu intervals, due to mechanical defects.

itself was out of bounds to all ranks. One of the big achievements by the idi airmen and officers was a most excellent concert party and dance band; they everal shows, not only to station personnel but also to local civilians, and they the gold-mining district of Tarkwa, sixty miles inland. Wherever they went ad a great reception, and deservedly so. Arranging a dance was no easy matter,

paths.

Sisters, probably twenty wives of civilians. I can remember on and two run by the officers, and then each woman had about tw from. It was a great pity, because the dance band itself wou West End hotel.

A good library was built up by the Padre, and in the all Officer some of us volunteered to give tuition in a wide rang French, German, shorthand, physics, etc. At first the airmen sl

for this educational scheme, but after a time the number of studes probably a hard day's work in the tiring West African climate was to an evening's study. Every Sunday there was a football mate were usually natives, who played in bare feet. They played veexcellent team and the number of defeats was small indeed. The tion was swimming, and every afternoon at about 5 p.m. large officers would go down to the beach for an hour or so. I prevery day, and learned to surf-ride. Surfing was great fun with only certain areas were safe for bathing, even for expert swimdangerously strong currents set up by shifting sand. Sunbathi most dangerous, as those few who ignored good advice soon for so before dark was most pleasant, as was the early morning if 8 a.m. The sun rises and sets most rapidly in West Africa, twiling non-existent, but although there was a rigid black-out complete dar

Life at Takoradi was for those who could make hobbies for those who had to be amused from outside. If you were not bored company for months on end, if you liked reading, liked swimming or were interested in native life and customs there was somethin spare time. Undoubtedly officers enjoyed more facilities than did all had a high standard of living, with excellent food, plentiful a cigarettes, with native boys to do the housework, washing, etc. Per than anything else was that you should guard your health by following the day, have treatment immediately on the appearance or rash, be careful not to drink to excess—the belief that to have plessystem was a safeguard against malaria was too often disproved-mosquito-net was firmly tucked under your bed, that there was no

in it. If you observed all these precautions you stood an excellent

even if there was no moon the brilliant starlight was enough to ill

malaria, and malaria is best avoided.

Until one has served overseas it is difficult to visualize how excarrival of the mail from home. At Takoradi we had mails rough but because of obvious war-time difficulties there might be two delithen none for a fortnight. A rumour would circulate that a conext day, and the rumour might be well-founded. When it did ar see the ships in the harbour. Then the question was whether or and from then on the Embarkation Staff were the men who kn rumoured that forty bags of mail had already been unloaded, but were true the mail might be for civilians or for the Army, and glamong the R.A.F. Then some mailbags would actually arrive at the and every hour until its distribution would seem like a week. It was tribution was spread over two or three days, and so one had the delivery. Whenever mail arrived at the Mess an air of rosy conteverybody. Some would read their letters in the ante-room, other

their rooms to read in happy solitude. The men's mail was distribut

batches, probably A—L and N—Z. I was once present in one of the mail was being given out. There were two corporals calling out tenvelopes, while several hundreds of A.Cs. waited in a state of gre their own names to be called out. If only their relatives and friends

or thing in comparison to a letter, even if it were a letter written perhaps six weeks e; and newspapers printed two months before were none the worse for that, despite act that the radio news bulletins from London were relayed several times each day. The worst thing about the Takoradi climate was the humidity, especially in the evening, when it might reach 94 degrees, and, standing at a party in a Mess room one's drill tunic would be literally soaking wet, not to mention shirt and relothing. Letter-writing was an effort to prevent perspiration attaching the ng-paper to one's hands. Except for the months of July, August and September un made the days too hot for any walking about that was not absolutely essential, visiting notabilities quite rightly marvelled at the way the ground crews worked several hours each day, servicing aircraft under the scorching sun. Doing a cless job, those airmen did not grumble much; they did not "go sick" unless they had to and they were an example to all at home.

With the exercise of reasonable precautions regarding health, and the use of a imagination in the use of spare time it was none the less more than possible to in both fit and happy. Most of the R.A.F. were fit and happy, and I know I was alone in taking away many pleasant memories of service in West Africa: of new ds one came to know intimately through constant association, of the highly intellinatives, of the thrill of surfing, of golf on the Takoradi Club course, tennis on Mess courts, trips to Tarkwa and the Coast settlements, the hospitality of civilian ents, walks along the beach at night, parties in the Mess, the thrill of home mail—e all, the knowledge that all of us had been doing something, however seemingly nificant, to keep the aircrews supplied with all they needed for the Libyan campaign, other campaigns still farther afield.

#### WEST AFRICAN SUPPLY ROUTE

ING the two years ending October, 1942, thousands of British and American aircraft delivered to the Middle East Command by the West African route from West a across six thousand miles of equatorial jungle, bush and desert to Egypt.

In pre-war days such a flight would have excited the admiration and wonder of the world, but week in and week out for two years allied pilots have braved the ous journey without the world knowing anything about it. It has been a hush-job and one of vital importance to the war effort of the United Nations.

The fall of France created very serious difficulties in the way of getting aircraft ne Middle East and necessitated a fresh supply line being opened without delay. It was decided to assemble the aircraft on the west coast and fly them across the continent of Africa to Egypt.

A small town was chosen originally as the most suitable starting point because of good harbour. There was an aerodrome already in existence but with extremely ed facilities. To-day that aerodrome is one of the biggest and best equipped in ea, and there are others.

The best and quickest route to Egypt from West Africa was found, and thousands alives cleared big spaces in the jungle and bush to make emergency landing-grounds the aircraft en route. Very soon everything was ready for the first convoy of aft to be flown to the Middle East. Nobody was quite sure how it would work difficulties were enormous—they still are, despite greatly improved facilities. But a the word "go" the venture was a success, and it was evident that here was the ter to Britain's supply route problem so far as aircraft was concerned.

As more aircraft were shipped from Britain and America for assembly and delivery nore pilots were required, and nearly one hundred of the most experienced Polish in Britain were sent out to become part of an organization which was rapidly loping. Although practically all fell victims to malaria the Poles quickly took their in the scheme of things and even managed to find time to attend daily classes in lish. So well have they carried out their job that to date they have flown more

Sisters, probably twenty wives of civilians. I can remember only two sergeants' dances and two run by the officers, and then each woman had about twenty partners to choose from. It was a great pity, because the dance band itself would not have disgraced a West End hotel.

A good library was built up by the Padre, and in the absence of an Education Officer some of us volunteered to give tuition in a wide range of subjects: maths., French, German, shorthand, physics, etc. At first the airmen showed great enthusiasm for this educational scheme, but after a time the number of students became very small probably a hard day's work in the tiring West African climate was not a suitable prelude to an evening's study. Every Sunday there was a football match. The visiting teams were usually natives, who played in bare feet. They played very well but we had an excellent team and the number of defeats was small indeed. The most popular recreation was swimming, and every afternoon at about 5 p.m. large numbers of airmen and officers would go down to the beach for an hour or so. I personally swam almost every day, and learned to surf-ride. Surfing was great fun with a five-foot board, but only certain areas were safe for bathing, even for expert swimmers, because of the dangerously strong currents set up by shifting sand. Sunbathing before 5 p.m. was most dangerous, as those few who ignored good advice soon found, but the hour or so before dark was most pleasant, as was the early morning from sunrise to about 8 a.m. The sun rises and sets most rapidly in West Africa, twilight here being almost non-existent, but although there was a rigid black-out complete darkness was very rareeven if there was no moon the brilliant starlight was enough to illuminate the roads and paths.

Life at Takoradi was for those who could make hobbies for themselves, not for those who had to be amused from outside. If you were not bored by having the same company for months on end, if you liked reading, liked swimming, if you could sketch, or were interested in native life and customs there was something to occupy all your spare time. Undoubtedly officers enjoyed more facilities than did the other ranks, but all had a high standard of living, with excellent food, plentiful and cheap drinks and cigarettes, with native boys to do the housework, washing, etc. Perhaps more important than anything else was that you should guard your health by following the advice of the expert medical staff: take your daily quinine tablet (five grains), wear your topee during the day, have treatment immediately on the appearance of even the slightest rash, be careful not to drink to excess—the belief that to have plenty of alcohol in the system was a safeguard against malaria was too often disproved—and see that your mosquito-net was firmly tucked under your bed, that there was not even a tiny rent in it. If you observed all these precautions you stood an excellent chance of avoiding

malaria, and malaria is best avoided.

Until one has served overseas it is difficult to visualize how exciting a thing is the arrival of the mail from home. At Takoradi we had mails roughly once per week, but because of obvious war-time difficulties there might be two deliveries in one week, then none for a fortnight. A rumour would circulate that a convoy was due the next day, and the rumour might be well-founded. When it did arrive everyone could see the ships in the harbour. Then the question was whether or not it carried mail, and from then on the Embarkation Staff were the men who knew. rumoured that forty bags of mail had already been unloaded, but even although this were true the mail might be for civilians or for the Army, and gloom would spread among the R.A.F. Then some mailbags would actually arrive at the Camp Post Office, and every hour until its distribution would seem like a week. It was best when the distribution was spread over two or three days, and so one had the illusion of a daily delivery. Whenever mail arrived at the Mess an air of rosy contentment pervaded everybody. Some would read their letters in the ante-room, others would retire to their rooms to read in happy solitude. The men's mail was distributed in alphabetical batches, probably A-L and N-Z. I was once present in one of the dining halls when mail was being given out. There were two corporals calling out the names on the envelopes, while several hundreds of A.Cs. waited in a state of great excitement for their own names to be called out. If only their relatives and friends in England could have seen those faces, they would have been well repaid for any effort letter-writing might have cost them. The telegram service was fast and reliable, but a telegram was

a poor thing in comparison to a letter, even if it were a letter written perhaps six weeks before; and newspapers printed two months before were none the worse for that, despite the fact that the radio news bulletins from London were relayed several times each day.

The worst thing about the Takoradi climate was the humidity, especially in the late evening, when it might reach 94 degrees, and, standing at a party in a Mess ante-room one's drill tunic would be literally soaking wet, not to mention shirt and underclothing. Letter-writing was an effort to prevent perspiration attaching the writing-paper to one's hands. Except for the months of July, August and September the sun made the days too hot for any walking about that was not absolutely essential, and visiting notabilities quite rightly marvelled at the way the ground crews worked for several hours each day, servicing aircraft under the scorching sun. Doing a thankless job, those airmen did not grumble much; they did not "go sick" unless they just had to and they were an example to all at home.

With the exercise of reasonable precautions regarding health, and the use of a little imagination in the use of spare time it was none the less more than possible to remain both fit and happy. Most of the R.A.F. were fit and happy, and I know I was not alone in taking away many pleasant memories of service in West Africa: of new friends one came to know intimately through constant association, of the highly intelligent natives, of the thrill of surfing, of golf on the Takoradi Club course, tennis on the Mess courts, trips to Tarkwa and the Coast settlements, the hospitality of civilian residents, walks along the beach at night, parties in the Mess, the thrill of home mail—above all, the knowledge that all of us had been doing something, however seemingly insignificant, to keep the aircrews supplied with all they needed for the Libyan campaign, and other campaigns still farther afield.

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The fall of France created very serious difficulties in the way of getting aircraft to the Middle East and necessitated a fresh supply line being opened without delay. So it was decided to assemble the aircraft on the west coast and fly them across the vast continent of Africa to Egypt.

A small town was chosen originally as the most suitable starting point because of its good harbour. There was an aerodrome already in existence but with extremely limited facilities. To-day that aerodrome is one of the biggest and best equipped in Africa, and there are others.

The best and quickest route to Egypt from West Africa was found, and thousands of natives cleared big spaces in the jungle and bush to make emergency landing-grounds for the aircraft en route. Very soon everything was ready for the first convoy of aircraft to be flown to the Middle East. Nobody was quite sure how it would work. The difficulties were enormous—they still are, despite greatly improved facilities. But from the word "go" the venture was a success, and it was evident that here was the answer to Britain's supply route problem so far as aircraft was concerned.

As more aircraft were shipped from Britain and America for assembly and delivery so more pilots were required, and nearly one hundred of the most experienced Polish pilots in Britain were sent out to become part of an organization which was rapidly developing. Although practically all fell victims to malaria the Poles quickly took their places in the scheme of things and even managed to find time to attend daily classes in English. So well have they carried out their job that to date they have flown more than one thousand aircraft over this West African route. Moreover, they have "delivered

the goods "with only two per cent. loss, a striking tribute to t for this is one of the most testing flights ever made. For this of the Poles have been awarded the Air Force Cross and Air I At the start it was mostly Hurricanes and Blenheims that

point, but very soon the first of the American Marylands and The machines arrived by ship in crates and had to be assembled which were expanding daily. At first only two or three convotrip each week, but latterly such convoys have been a daily occ takes over twenty-four flying hours, excluding putting down a grounds en route where the aircraft are refuelled and the enfighters carry additional petrol tanks, as otherwise they could not between the landing-grounds. Naturally enough the daily haz this cross-continent ferry service have produced stories of incendurance.

One young flight lieutenant of the Royal Air Force, while along this route was the leading figure in an exciting incident, the jungle when engine trouble developed and he had no alter a forced landing. A clearing in the forest was observed and alth caught fire the pilot succeeded in bringing it down. Although from burns he extricated himself from the aircraft and awaite a native came to his aid and offered him water. This was thankful he had satisfied his thirst the native indicated that he was to followed the staggered to his feet and prepared to undertake a long trek through exhausted he followed the native until, after covering a dis

and exhausted he followed the harive tinth, after covering a disability and a little French outpost hove in sight. It was a small garrison interests in the jungle. The pilot scrambled to the nearest tentifigures were sitting at a table. He looked around and suddenly in the French officers' mess. Notwithstanding his weak condition with great dignity, saluted and said "Excuse me, gentlemen," a

On another occasion a fighter ran out of petrol and the pilo in the desert. Nearby stood a native villager. By signs the piknown. The villagers brought him a chicken, some eggs and son also sent off a runner to the nearest outpost telling where he had in a few hours he was picked up again.

When another aircraft, this time a bomber, was forced down in were there for several days before being rescued. They bought co-

and managed to hang on till help came.

For the most part, however, the convoys get through without sort. Established along the route now is a chain of aerodromes er ground staff, a fresh supply of fuel, spare parts and a workshop.

The R.A.E. and the British and American civil air companies by

The R.A.F. and the British and American civil air companies I to the organization of this chain and the job has been remarkable hops "from point to point are still long but there are plenty of a

grounds in addition to the established aerodromes.

The organization of the reinforcement route has been unobtr Everything—supplies, spares, engineers, technicians, medical service on." Most of the pilots who inaugurated the scheme are now convolof them gave a description of his job and of the type of country and encountered.

"Everything is so easy and simple now," he began, "but it two years ago. Then it was dangerous flying indeed. Now the mete and improved landing grounds have belped a lot, although sometisuddenly spring up and make flying a real nightmare. There hav naturally, and men have wandered for days in the jungle or desert be up. But there have been few aircraft which failed to arrive on schettrip itself we have to cross a huge forest, where it would be impossible place should anything go wrongered to remember that in the beginning up in native buts it we staved for the night, and that was not a very ple

smoothed out. We also cross what is, I believe, one of the most interesting hes of country in the world, crammed full of lions and other wild animals. But er to stay in the air. The most boring part of the trip is a stretch of more than housand miles over the Sudan and nothing but barren desert all the way except vo stopping places. Once we get to Khartoum we reckon the trip as good as for after that it is a straight run up Egypt to our destination."

lainly, therefore, it is a job involving hours of monotonous flying over treacherous ften uninhabited country, but the pilots know that their work is appreciated and he steady, continuous flow of bombers and fighters which they deliver operationally

eable is vital to the success of our forces in the Middle East, is not only the convoys of bombers and fighters that use the reinforcement. There are also the communications aircraft carrying official mail and personnel tly required in the war zone. After the war, perhaps, this will be one of the airways that will link the world. For the present it is a vital life-line for the d Nations in their war against the Axis.

## DESERT-LORE FOR AIRMEN

By FRANK W. LANE.

"To him who knows it, the desert can be a fortress; to him who does not, it can be a deathtrap."—GENERAL GOTT.

rman, lost in the desert after making a forced landing, is in a pretty tough spot. e or forest land is a Paradise compared to the desert, while swamp and mountain ry both have considerable advantages over that sun-blasted waste of almost ss sand.

f you are likely to do any desert flying it will pay you to read what follows pretty ully, because if you should ever hear your engines die out on you when you are over endless miles of sand, you are going to need every tip you can possibly mber about desert-lore if you are going to have a reasonable chance of getting igh alive.

You won't have many moments to spare between the time you realize that a forced ng is inevitable and the landing itself but, if you can spare a moment, search the nd below you as far as you can see. It is just possible you might spot an oasis. If when you land you know without any shadow of doubt that you were on your when you landed, or if other aircraft were with you at the time and can thus advise ing aircraft of your exact position, stay by your aircraft. it hardly needs stressing, but as a warning listen to this: This point is so obvious

An aircraft, flying in formation over the Libyan Desert, was forced down by engine ble. The other aeroplanes in the formation noted its position and returned to base. were sent out to rescue the stranded airmen, but when the rescue party arrived e position they had been given they could find no trace of the machine or its crew. r it transpired that the airmen who had been forced down had succeeded in getting ircraft to start and had tried to reach base on their own. But after they had been g for a short time the engine again died out—this time finally. When the crew

eventually found they were dead. Verb sap! Now let us assume you have made your forced landing. The very first thing to s to inspect the water and other drinkable liquid containers you have on your Your greatest need in the desert will be water and before you get through you

need every tiny drop you had on that aircraft. Make sure no water container is leaking through damage caused by landing. If h water has spilled on to the ground, immediately collect the moist sand and, if salvation.

In the good old days you would also have had the water in the thirsty you may be you will hardly be tempted to drink the c radiator!

Your first sensation when this job is finished may be a rag be only psychological thirst, so fight it and sit down. If you ha

It is enormously important that any man who is lost,

or anywhere else, should calm down, collect his wits and move c. When you first clamber out of your aircraft you will projone landmark—the aircraft itself. And there are a number of probably need pretty badly before you are through. Therefore have your plan of campaign.

While you are sitting and smoking do some hard thinking. least roughly, where you are in relation to the sea and your base plans open to you. You can stay by your aircraft and wait until can leave it and, carrying your water and food supply, try to

They have trekked during the day, marking their trail in the sanfind their way back, and returned to the aircraft at night. Befor they wrote their plan in huge letters in the sand. Whichever depend on your circumstances, such as water and food supply, from your base or an oasis, whether you landed in a spot over wh frequently fly and, above all, whether you were on your track or no likelihood or not of being sought by rescuing aircraft. But it must that the aircraft should not be left unless there are very strong r While with your aircraft you may be able to transmit by groun ready-made shelter from heat and cold; on board are useful stores you cannot carry if you trek; the petrol and oil can be used for c signal fires, and the aircraft provides a much better landmark for

Some airmen who have crashed in the desert have combined

Let us assume the worst. You have landed somewhere in the in the world, Libya. You are off your track, no chance aircraft ar your radio is smashed and you are hundreds of miles from your bas from the sea or the nearest inhabited region. In these circumstance probably be to head for the sea. (I am assuming that you do nearest oasis, village supply dump or even friend or foe are. Of coother considerations than the position of the sea will affect your

If you do reach the sea you stand a fair chance of being pick traffic goes along or near the coast in Libya) and your water an likely to be solved more easily near the sea. Before actually leavin on the sand with stones or bits of the aircraft a gigantic arrow direction you have gone. This may help rescuers to find you.

giving full details of your plans, and date and time of departure.

It is much the best plan in the desert to travel at night, and manage this I would strongly advise it. Hassanein Bey, an ex

traveller, once trekked over forty miles across the Libyan Desert in hours of night travel.

Before leaving your aircraft you will have to decide what y you. Your might be able to carry enough to see you through to example, that you have a fairly good supply of water and food on be 200 miles to go to reach the coast. A determined, healthy mar distance in about a week on a pint or even less of water a day and show that is no exaggeration, Antoine de Saint-Exupéry says in

covered 124 miles in three and a half days on about a pint of liquic What are the essential things to take with you? Water, food, or 5 ft. long wooden (or aluminium) stick broken from your made

Stars" that he and his mechanic, who made a crash-landing in the

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clothes. If you have a revolver and ammunition take them, and if you have covers, and can manage it, take part of one along with you—say a few square. As you trek it is a good plan to keep an exact plot on a map of your track istances travelled.

Ind now, since we are assuming the worst, supposing you run out of your water.

nd now, since we are assuming the worst, supposing you run out of your water bood supply while still a long way from safety? Well in that case you make a t effort to keep your wits and practise all the desert-lore you ever learnt. s nearly always with a man lost in uninhabited country, the most imperative s to find water. And there's no place on earth where water is so difficult to find

the Libyan Desert. But water is there, and can be obtained if you know how

about getting it.

ew sometimes falls in parts of Libya, and Saint-Exupéry tells how he and his
nic obtained from their outspread parachutes about half a gallon of dew water.

tunately the water was rendered undrinkable either by the "dope" on the parachute
or the lining of the tank into which they poured the liquid.

the part of the engine-covers that I suggested should be taken from the aircraft to useful for collecting any dew that might fall. Mr. Robert Wyndham, who once a forced-landing in a desert himself, has suggested to me that flying-boots, left dout all night, would catch dew which could be sucked in the morning from the en lining. The dew makes the sand quite moist and it might be possible to obtain from this moistened sand on the lines mentioned.

hen you can obtain moisture from desert vegetation.† This is admittedly very in Libya, but it does occur. All greenish grasses may be eaten providing they of diseased. Sometimes the grass is so sparse that you have to look along the of the ground to appreciate how much is there

e of the ground to appreciate how much is there.
ou must be careful what plants you eat. Mr. N. Douglas Simpson, a botanist
has had considerable experience of the Libyan Desert, has been kind enough
d me some notes on this subject as well as other useful hints concerning roughing
Libya. Mr. Simpson says it is advisable to eat no bitter plants, nor highly

tic or very salty ones. Plants with a milky juice should also be avoided. On count must the desert apple be eaten.

straggling plant with small yellow dandelion-like flowers bears leaves which e eaten. A small dock-like plant called hommeyd, which is fairly common in ocky and sandy deserts of Tripolitania, Cyrenaica and Egypt bears leaves which cod eating. A spiny bush that often occurs in large, pale grey-green clumps bears bearies which can be eaten. But it is inadvisable to eat other red or black berries. It is in a deserted cultivated area and find figs and those heaven-sent thirst quenchers, pomegranates! Manna is sometimes on tamarisk trees and bushes. It is in white lumps, the size of a pea or bean bushes exude moisture during the night, and although this is very salty it can ed to wet the forearms, which is very refreshing.

ut the best source of water is, of course, an oasis, using that term in the widest of any place where natural water is found. Finding an oasis while completely an uncharted desert is an extremely difficult job, but the following hints on spotting will at least enable you to set about the job intelligently.

irst, don't wait until you are nearly all-in before you start looking for an oasis. of moisture, exhaustion and the sun can so play upon a man that thirst-maddened turers have been known to plunge across rivers and die of thirst on the further

is easy to be quite near an oasis and yet miss it completely. Oases generally a hollow and this fact combined with the difficulty of distinguishing colours at ance in the desert render oasis-spotting a difficult task.

"The extent of the root system of desert plants, by means of which they absorb water from 1 is often astonishingly great. In the Mohave Desert in California a branching cactus 10 in. in

Nearly every traveller in the Libyan Desert has met with rain . . . (the suggestion) that there the more rain there than is supposed appears to have been amply corroborated."—Major Ralph A.

Sometimes an oasis can be detected only by a peculiar loa mist or haze appears to hang over a particular spot. This no doubt due to the fact that the clouds lose their brown tin colour of the sand, when over an oasis.

The experienced traveller, Mr. Harding King, gives the folinding the whereabouts of an oasis: "Oases are usually most c behind them, as the part upon which one then looks is in the slappears as a dark spot against the sunlit background. The early east and the late afternoon when looking west are consequent times for sighting an oasis."

A word about mirages. If you continue on your way a mir fore, if you see a "mirage" which does not move it most prot Generally speaking, water is most likely to be found in the

The first signs of an oasis are generally the presence of veget and signs of animal life, using that word to include anything own volition. Gazelle often trek from one oasis to another not found far from water (unless blown out of their normal ha always indicate the near presence of food and water. Flights lead to water. When flighting to water these birds have a swhich is quite different from the wandering flight, broken by for food.

Incidentally, from the point of view of obtaining water the la sand-grouse in the spring. When these birds have young feathers with water and then quickly fly back to their nest. The passing the moisture-laden feathers through their bills. So if yo winging its way back to the nest you would have a small supply of But then a man who could pot one of the fastest birds which this revolver would obviously have no difficulty in performing anothe desert on the magic carpet he has summoned as his chariot!

Mr. Simpson has written the following notes on the signs w

presence of water: "One should search for water at the lowest flow in the oases. One should take careful note of the quant colour and the texture of its leaves. If there are lots of vegetation stems, grey-green leaves and grass in tussocks with harsh dry lea at considerable depth—don't dig. If there is a line of more or dark fresh green in colour with perhaps reeds or rushes, perennia but with broad soft leaves, this denotes water on or near the three feet. When there is plenty of vegetation, a lush green, wit grasses and other plants (i.e., slender-rooted, non-woody plants) has been recent rain. Do not dig but look for rock pools if in rin mud pans at the lowest places. There is free flow of water in long periods of the year. Some of these wadis extend for many re-

rancis Galton says fountains of water can sometimes be for of the great African deserts and are found most frequently in d limestone rocks. Where these crop out in the middle of the dese should be kept for signs of water. It may be found in deep-should be left for signs of water. It may be found in deep-should be left for signs of water. It may be found in deep-should be left for signs of water. Such places are presumably the work of natives.

is at the bend of the river. Deep holes are often formed here current and pools may be found under the surface long after the has ceased to run. Sven Hedin, after a terrible journey across a managed to stumble to a completely dired-up river. In a part found a pool of water which saved his life, and he says: "I had he places, separated sometimes by a day's journey or more, the river is the complete of the river is the complete of the river is the river in the river is t

Should you come across a dried-up water-course the most likely

<sup>&</sup>quot;I am not quite clear about this. The Nile valley of course might be

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the bed into greater depths, and that the water may remain the year round in

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hollows near the terraced shore." ven if there is no water in the river you may find some reeds growing on the Chewing the soft stalks of these reeds will help to alleviate your thirst. Mr. on says another very good thirst-quencher is to bite through the stem of the plant. This is an umbelliferous plant and looks like an intricate-branched dried

rsley plant and is usually leafless.

you come across a spot likely to yield water, and you decide to dig for it, you nd the stick I advised you to bring from your aircraft come in useful. Take ick in both hands and, holding it upright like a dagger, stick and dig it about ground. Then clear out the loose earth or sand with your hands. If you have the right spot you will notice about three feet down (or less in some places) that rth or sand is moist. Enlarge the bottom of the hole and wait. Very gradually will seep through.

you can get only wet sand and there is grass in the vicinity use the following d: Tie some of the grass together in the form of a cone six or eight inches long. ne broad end into the wet sand and scoop up as much as you can. Then turn ne upside-down and from the thin end you will get a streamlet of partly filtered

Failing grass, you could probably make your handkerchief act as a filter.
here are several ways of rendering impure water fit to drink. If the water is only by surface impurities you can drink through your handkerchief, which will a rough and ready strainer. Place the handkerchief over your drinking receptacle it over the pool of water and suck through it. Incidentally, a camel carries its ilter in the shape of the border of inwardly bent bristles on its rubbery lips. gh these the camel strains all the water it drinks.

he best plan with putrid water, if you have the means to carry it out, is to boil twenty minutes, mix it with charcoal and expose it to the sun and air. Natives

mes just plunge a hot iron into the water before drinking it.

nother method, which can also be used for salt-water is distillation. The simplest o distil is to light a fire among stones (I dealt with the subject of making a ithout matches in my article in the R.A.F. Quarterly for September, 1942, on a-lore for Airmen") near a hollow in a rock. Fill this hole with the water to be d; take a stone that has been heated in the fire and drop it in the water.

he water will then give out clouds of vapour and much of this can be collected loth (or in the wool of a flying-boot) and subsequently wrung or sucked out. that is boiled or distilled will probably be tasteless and indigestible. These antages may be overcome by shaking the water up with air in a suitable con-

(e.g., flask) or by pouring it from a height in a thin stream. efore leaving this all-important subject of water here are a few miscellaneous

It is best to drink only during the cool hours. Water that is drunk during the of the day quickly evaporates and leaves you as thirsty as you were before. nein Bey says: "There is considerable misconception as to the amount of water ed by the desert traveller. In winter we found it possible to subsist on an ordinary il in the morning and another in the evening. Occasionally on the daylight es, a third glass was taken at midday, but this was looked upon as more or less of eminate weakness." He adds that very strong, black, sweet tea gives remarkable

to the desert traveller. me desert travellers find that a meagre water ration appears to last longer and more if drunk from a spoon. Liquid that cannot be drunk can still be used e some relief from thirst. As moisture can be absorbed through the skin,

sing the body in any liquid (e.g., sea or very salt-water) refreshes a thirsty man. handkerchief round the throat is also helpful.

rabs, when suffering from extreme thirst, drink the blood of their camels. nis Khan used to solve the iron-ration problem by issuing to each of his soldiers w with which they could tap their horses' veins and thus drink the fortifying If you managed to kill an animal you could, as a desperate resort, do the same. be imposed dead camels. Vile though this is it often

moisture should never be indulged in. You are almost certa if you do that. There are a few things which help slightly to alleviate thirs

or, Arab-like, cover it with a cloth. Several desert travell helped them to forget their thirst. Others advise chewing a st pebble to keep the saliva flowing. Sven Hedin found that who

hours without water, the inside of his mouth became as dry craving for water was dulled. If you can somehow solve the water problem you should fi to obtain food. In addition to the vegetation already menti other plants which can yield sustenance to a hungry man. Brit added to their meagre rations by eating the roots of some of th

The tree known as Christ's Thorn bears oval reddish-brov Should you be near the Sudan you may come across This exudation appears on the tree in lumps about

Libya is prolific in snails, so keep a look-out for them wh

It is used for making sweets and is quite edible, although the best for this purpose. Bulbs should be avoided except those of chocolate flowers, small and tubular. In a few spots in Libya obtain an English type of mushroom. It should, of course, be the exception of a few grasses, all these plants, etc., are only of oases.

plants. In some parts of Africa large snails are commonly used nomadic natives on prolonged safaris. There is a fair amount of wild life in Libya. Like the ve chiefly in the neighbourhood of the oases but animals and birds

from the nearest oasis. Where sand gives place to earth and s certain to meet animal life. Should you be able to bag some locusts, make a fire and fry but sustaining. The jerboa or kangaroo rat makes good food be caught with ease. They live in colonies and their burrows ar

are also fairly tame (as are most desert creatures) and with patien You may come across a useful food cache in their burrow There are many lizards in Libya and some of them are a Although the lizards run very fast they soon tire, and if constant

100 yards they become exhausted and can then be easily secured. taken with the big spiny-tailed lizard as its tail can give a very n have a weapon and are a good shot you might be able to secure gazelle or other antelope.

Several species of birds are found in Libya. Sand-grouse, part plovers, desert turkeys and, during the migration seasons, numero shoot any of these on the wing with the type of firearm you are I be a fluke, but they sometimes settle and you may get a chance should you see owls, swifts or rock doves you are probably ne

The natives have several traps for catching birds, some so s

could copy them. One, used mainly for catching quail, consists of a with a slab of rock or a large clod, supported in position by sticks to A few grains of wheat are used as bait. A slight knock by the bird sticks, or a quick jerk by the watching trapper on a string, suffices

desert, as these birds seldom fly far into the desert.

in the hole. Of course you might be lucky enough to come across some o one of these will make a good meal for eight people.

It you have followed the advice to trek at night you will want from the sun's rays that you ognegor woo offing during the day. If y throw some clothes over it, or the part of the engineeouss, or both and with only your face open to the air. Saint-Exupéry, sleeping during the cold , did this and records: "So long as I lay absolutely motionless, I no longer he cold."

Ir. Simpson adds these precautionary hints about sleeping in the desert: rpions have an unpleasant habit of trying to keep warm by burrowing under one ght; care is to be taken to avoid worrying them on rising! Tarantulas also must e unduly annoyed. The golden rule is not to lift up stones carelessly; kick them before lifting. Their sting or bite would probably be fatal to an exhausted man. go to sleep near cracks in the rock or holes in a wall."

a point to remember about sleep is that however all-in and terribly thirsty you eel before going to sleep, a good rest can work wonders with you and enable you uggle on perhaps just that extra few miles that might mean water, food and safety. he best gait for travelling over sand is a steady plodding walk, with knees bent eet flat. Don't "heel and toe" walk. The Bedouin usually walks with a stick under his elbows and over his shoulders. This device affords considerable relief llows good ventilation even with European clothes.

Without a compass (preferably the special desert sun-compass) navigation in the is not easy. The flatness, sameness and featurelessness of the country make travel for the inexperienced a hazardous proceeding. But here are a few tips may help you should you find yourself lost in this vast sea of sand without any

Make the fullest use of sun and stars for inical aids to direction-finding. ion-keeping. he prevailing winds in Libya are slightly to the west of north. The wind blows the same direction for weeks at a time. You can therefore note where it is and it on the same side of you as you trek. Of course, if the wind is varying you ave to ignore it altogether. If the country you are traversing is not entirely eless, try to pick out three landmarks on the course you are following and keep

as far as possible in line, choosing another point as soon as one is passed. Most wadis lead in the direction of the sea. In the very flat ones the direction can

uged from the eddies marked in the sand by the last rains. s a general rule the steeper side of a fairly deep wadi is on the west. Should you oking for a landmark remember that, as in looking for an oasis, dawn and sunset e best times. A piece of country that looks quite flat and featureless at midday

t these times show all its contours.

eep a look-out for small or large piles of stones. The Bedouins often build to guide themselves over a piece of featureless ground. They may denote a route g to an oasis. But if the pile of stones is built very neatly it may be only a made by surveyors and would be useless without a map of the district.

s you go along keep your eyes open for straight tracks—meandering ones ally indicate merely grazing paths. A main camel track is easily recognized, as sists of several more or less parallel lines. You may find a track leading from a caravan route. It will be worth following for a short distance as it may lead ds a side wâdi near a much frequented Bedouin camping ground and a well or hole.

assanein Bey, who made a remarkable 2,000 mile crossing of the Libyan Desert, the following interesting information on how some of the Bedouins navigate crossing the desert: "In daylight trekking, the Bedouin uses his shadow for pass, and so experienced has he become that his course alters imperceptibly as adow moves in sundial fashion. About midday he would get in trouble, because ing by his shadow, this would then be between his feet . . . (at night). He glance over his shoulder, face so that the polestar would be behind his right ear,

ake a sight on a star to the south in that line.

He would march for perhaps five minutes with his eye riveted on this star, then nd make a new observation of the polestar; for, of course, the star to the south onstantly progressing westward. He would then select a new star for guidance ontifue . . . Knowing the method by which the Bedouin Reeps his direction

you must move about in it try to arrange complete covering shoulders. You might find the part of the engine-covers useful he take great care to avoid getting your abdomen chilled, as this is a diarrheea and vomiting, commonly called "Gippy (Egyptian)

However much you may feel like tightening your belt, do in the tropics should fit loosely, the perfect example of which garments. Air is a good insulator and your clothes should enco possible.

One very important point. It is not easy for an aircraft ground, and few things are more heart-breaking to a lost man aircraft fly right past without noticing him. Therefore be ready t aircraft comes in sight. A mirror or polished cigarette case or will do as an admirable signaller. But there is a special way to s to an aircraft, and unless you know this method you might the rescuing pilot's attention.

The correct way to signal is as follows. Point the mirror spot of light appears on the ground just in front of you. Then c so that the light moves away along the ground in the line of t rises up well past it. Then continue flashing the mirror up and c this method you will ensure that your signal is directed towar will be hit by repeated flashes of light.

It is surprising how far the light from such a tiny object as Brigadier-General A. C. Lewin, who was forced down in the

that he heard the sound of what he took to be a rescuing aircrapilot could not see him for it came no nearer. The General say idea, and seizing a mirror I flashed it in the direction of the sou rewarded, for the flying-boat saw the flash and soon appeared I machines. Regarding static signals, Mr. Simpson says: "As pick up a man on the ground from the air, any signal that was por sleeping during the day should, if possible, consist of an object or of regular angular outline as these are rare in Nature. I can it man sleeping even when an aeroplane was quite audibly near him.

One last point—man's endurance is very great. If only you and to fight through to safety you can put up with almost incred airman, lost for five days in mid-winter among the Andes, stum "shrivelled and shrunken into an old woman," with these words: I went through, no animal would have gone through. "A Mexican desert, staggered back to safety after being out for eight days with sufficient for only one. Yes, even in Libya a man has a fair chance to safety after a forced-landing-providing he keeps his wits about

The following notes have been received from Major C. S. J article was submitted by the author:-

"Water can usually be found on a sandy seashore by digging eight yards from the sea. This water is only very slightly brackish It is rainwater which has but becomes worse in course of time.

the soil and is then held back by the sea. In the Libyan Desert there are only the well-known and wel if the airman has got a knowledge of the lay-out of the country? position of these cases. It is not much good hoping to find an oasithat the whole desert is scattered with them, but if he knows mor

has been flying he should also know where the nearest bases are. "Last war our airmen went up with apparently no knowled lay-out of the desert. I take it the episode you mention of the act down through engine trouble and which later was started up again about in one of my books. I found the bodies later, and it was a p as it the two men had had only and wag the local of the country and a significant to the country are considered to the country and a significant to the country and a

would have been within sight of Kharga Casis after about six how

ON LUCK

ig fixed compass in the machine and never by any chance a prismatic in their its. From the way you write I gather you do not expect them to have this ct, and you are wise.

About sand-grouse—you would be fairly safe to say, when seen flying just before they are heading in the direction of water. They feed on the camel dung and s dropped by caravans, and if there is no traffic between oases now and no camels

won't be any sand-grouse.

In peace-time we always recommended pilots and car drivers—if lost—to stick by machines unless they were absolutely certain of their position and knew they could to safety. But in peace-time when anyone was lost we mobilized everything to hem—in war, things are different and I suppose it is only when they are certain plane being in a certain place that they send out help.

You are correct about the wind, but in the spring and also for a short time in atumn there are the hot winds mostly from the south. I should put in the provison normal summer weather the wind is almost invariably just west of north, but

wind is burning hot it should not be trusted for a compass point.

There is a dodge I had for finding the position of the sun on an overcast day adstorm—I did not have to do it very often—and as it apparently does not work is country I think it a doubtful system. You put the blade of your penknife and downwards on your thumb-nail and twiddle it round until you can detect a thin shadow—the opposite side to this is the position of the sun. As it won't work is country I am beginning to wonder if it was really effective in Egypt."

#### ON LUCK

is impressed upon me in my early teens by certain of my mentors, scholastic and wise, that there was no such thing as Luck. When I, not fully satisfied, questioned athematical mentor upon the justice of submitting decisions to the hazard of the of a coin, he informed me, with some little asperity, that the toss of a coin was not both the parties concerned and that if a considerable number of tosses were the Theory of Probability and the Law of Averages would function and the number ads turned up in the tossings would equal the number of tails.

Whereupon, still doubting, I carried out one of my earliest experimental investigaby tossing a penny up for one thousand times precisely, only to find at the end he number of heads did not equal the number of tails and that, in fact, the heads greatly in preponderance. And taking this result with glee to the before-mentioned ematical mentor he informed me, with even more asperity than he had answered reviously, that the number of my tosses, to wit, one thousand, was too small and I needs must toss the coin an infinite number of times to prove adequately his

nent of ultimate equality of heads and tails. But as it struck me that even if I spent thole of my life in tossing coins I still would not have tossed an infinite number nes, the advice did not seem to me to be either practicable or wise: and from lay to this I have retained doubts about the Theory of Probability and the Law of ges. And I still hold the view that if indeed I be the sort of man who in tossing brings most of them down heads upward—the reasons for which I know not—the tossing is by no means fair to both parties, however my opponent calls. And coults as to the Theory of Probability and the I am of Averages were emphasized

brings most of them down heads upward—the reasons for which I know not—the tossing is by no means fair to both parties, however my opponent calls. And oubts as to the Theory of Probability and the Law of Averages were emphasized e fact that soon after my experimental investigation I lost the toss for innings e consecutive House matches: whereupon an agitation arose to deprive me of the incy on the grounds that I was a Jonah and was not favoured by luck, which upted deprivation I took hardly.

But those of us who say we believe in luck need to be honest with ourselves, and be honest is one of the hardest of all achievements: it is not luck in general in we believe but the other fellow's good luck and our own ill luck. Let us but

upon us.

sovereign merit, and of our own outstanding virtues: let a coover us and that is invariably due to his amazingly good luck. that it is of no avail for us to contribute our shillings to the never draw a horse, and even if by some miracle we do we know with equal surety that our contribution to the Christ to another who will smoke the cigarettes and drink the port, no atom of chance from the beginning. So far as we are cono means a fickle jade: she is a most consistent one—consistent.

men is a proposition which will meet acceptance from all but as my austere mentors of the long ago. There are too man world not to force that acceptance on the many. The few merce over ruled "and quote Pope: "All nature is but art unknown direction which thou canst not see." But to enter the realmopened up by that dictum is perhaps neither opportune nor like Arguments carried out therein are like, indeed, to be lengthy atterminology understood only by the initiated. I will, therefore, or

But that in reality Fortune does play a very considerable

from afar lest entering into them and disturbing their peace shall result would be by no means an unlikely one.

And so, accepting Dame Fortune with all her fickleness, son more of us make many and divers efforts not to offend her. Takes strange turns. We carry charms of queer design to gain magic power and little casts of beasts that never were. There is to Match cricketer who would only appear "in the middle" in boots patched and re-patched beyond recognition of their pristine selve Test Match cricketer who would only bat in a chocolate-coloured as properly to belong to the historic past as a museum piece. Fortune was really pleased with the offerings of old boots and I cannot say. And many a motor-car and many a pocket carry the propitiatory charms. And of the more of us who strive not to of

we, too, do weird and wonderful things. Not for the treasures of more timid of us pass beneath a ladder, set sail on a Friday of immediately projecting some of the spilled over our left shoulders, another human on the stairs, that would be foolhardy in the extra factorized but move deliberately towards us, for then Dame on us indeed for the test of that livelong day.

But let me make my position clear. I believe in luck in life but I

who carry charms and mascots or pay account to ladders, Fridays, eas. But I must make one reservation. Never will I be the this eightest from the same match. That is just simple wisdom, for the tact that one never knows. I would not do it even if it were the company and the next person or house was five miles ahead. Best wort a minute or so and light my cigarette from one of the cigarette

WHAT UNITED NATIONS' PILOTS ARE

Wii

No better example of an International Air Force could be found Command at the RAV In this Command at December, 1942, the than attend Whod squadrous ked by Albed personnel. Poles, Fighting Creobs, Norwegians and Dutch all are to be found florg side of Botish collagues. Then resplit the Government is impressive. For two have destroyed a total of some 408 ersons arrest, while American have destroyed a total of some 408 ersons arrest, while American

1e Poles were the first to have their own squadrons within the R.A.F. At the f the Battle of Britain they had two squadrons (Nos. 302 and 303) and they were British squadron and flight commanders. Wing Commander (then Flight nant) J. A. Kent, a Canadian, and Wing Commander (then Squadron Leader) Kellett were among their best-known leaders.

September, 1940, No. 303 Squadron, which is to-day Fighter Command's second t scoring squadron, shot down 100 enemy aircraft and, by the end of the Battle ain, had destroyed 126. A Czech fighter squadron shot down thirty-six in the peri**od**.

1941 the Poles had their own Polish squadron and flight commanders, and ney operated as all-Polish wings under their own leaders. Meanwhile other Allied had also formed their own flights and squadrons, fighting first under British hip and then under the command of their own countrymen. So efficient have roved that to-day some Allied pilots are leading British squadrons, while others nd flights in British squadrons. The R.A.F. can pay them no higher tribute. Belgian fighter pilot, Squadron Leader du Vivier, was the first Allied airman to British squadron. Now he is the wing commander in charge of Flying Training ighter Command Operational Group. Another Allied leader of a British fighter on is a Fighting Frenchman whose present score of twenty-one enemy aircraft red is only one fewer than that of Flight Lieutenant Kuttelwascher, the Czech ring Allied fighter pilot. This Fighting Frenchman now leads Fighter Comfamous "Jim Crow" reconnaissance squadron, and in the daylight raid on

bury on 31st October he personally destroyed two F.W. 190's. Polish wing commander was the first Allied fighter-pilot to receive the D.S.O. ilot took command of his fighter squadron on the second day of the war in

and was the first Polish wing commander to fly in Britain.

ese few instances afford some idea of the calibre of the Allied pilots flying with r Command. They have not missed a single large-scale fighter operation. In battle at Dieppe, thirty-eight of the ninety-six enemy aircraft shot down fell guns of the Allied fighter pilots. The famous Polish Warsaw squadron, No. 303, e top scorer of all R.A.F. squadrons taking part in that operation. They shot nine and shared in the destruction of a tenth for the loss of only one pilot. r Polish squadron that day accounted for seven of the enemy. nadrons of the Czech, Belgian, French and Norwegian Air Forces flying with

r Command also achieved splendid results. One Czech squadron returned from e having probably destroyed or damaged several heavy bombers and fighters. gian squadron was top scorer in its sector, shooting down five fighters and a Another fourteen enemy aircraft were damaged by their guns. Three enemy s fell to a Fighting French squadron and two Norwegian fighter squadrons them accounted for two bombers and nine fighters. These two squadrons also y damaged sixteen more enemy aircraft for the loss of four of their own pilots. ch figures by no means tell the whole story of our Allied airmen's achievements. are also the echelons of Allied personnel on the ground who service the aircraft. re quite as keen as the pilots and much of the great success achieved by their ons is due to the splendid support afforded by these Allied ground crews.

#### THE FLYING DUTCHMAN

made nineteen months ago-on a night in May, 1941, when Lockheed Hudson raided German aerodromes in occupied Norway-remains of special significance. pilots and air crews of the Hudsons were all Dutchmen, hitting back for the he at the enemy exactly a year after their country had been invaded and overrun. henever possible since that night these Dutch airmen, who are members of a Netherlands Naval Air Service squadron operating with Coastal Command, have 140

THE ROYAL AIR FORCE QUARTERLY

The tonnage of shipping sunk or badly damaged by th reached an impressive total, and only the other day the communique: "Yesterday evening a Hudson aircraft of Co and hit an enemy supply ship off the Dutch coast." The Dutch

favourite hunting-ground again—a few miles from the shores
It was in May of this year that the Dutchmen had their
putting out of action at least eleven enemy supply ships. It
were delivered from, or below, mast height, the pilots "leap-fr
and releasing the bombs at the moment the aircraft swept up
a dangerous method of attack. A foot lower, a slight misc
could end in disaster for the aircraft. But the Dutchmen
risks and continued to bomb from a low altitude to make su
with the bombs. One Dutchman went so low that the explosion

bombs rocked his Hudson violently; another narrowly missed floating from a ship. But in both cases the ships were dam suffered severely, and in the far north of Norway, and on the I German soldiers, sailors and airmen waited for food and equiparrived.

Many of the Dutchmen now flying with the squadron escape.

their country was invaded: others have arrived from the Eabeen many outstanding personalities among them. There flight-lieutenant—a superlative pilot—about whom a Royal Air mander once said: "I'd give anything to have him in my squanavigator who always typed his log in the aircraft while flak wand there was the pilot who painted a stork flying to deliver a of the Hudson. Some of these men have gone now. But always replace them. And the Dutchmen go on bombing Hitler's ships pattern of victory that will release Holland from the grip of

#### SEVENTY-THREE SAVED FROM THE

One of the greatest air-sea rescues of the war was successful December, 1942. Seventy-three passengers and crew of a merel torpedoed and sunk 500 miles out in the North Atlantic were re England. To accomplish this feat, aircraft of Coastal Command and the Royal Navy swept hundreds of square miles of sea, using sloops and tugs, before the final signal flashed the message "Op

As he stepped ashore, the last to be rescued, the veteran cap "Thank God for the Navy and the R.A.F. Thirteen days in an op in winter does not improve one's health. Though some of us suffering from boat feet, we stood as one man to cheer those they found us."

It is a story of grim determination, perseverance and co-op Navy and the Roval Air Force.

The ship was attacked by an enemy U-boat at night when The captain ordered the boats to leave his blazing vessel and had when a second torpedo sank his ship.

Before submerging, the U-boat captain, who spoke perfect the passengers and crew as to their cargo and destination, and the fate. The four small boats, each in command of a ship's officer

Aircraft of Coastal Command were dispatched in relays to sea sweeps the vast stretch of Sea Navigational experts worked a strength of wind and the possible course set by the small hoats +

aring in the trough of the Atlantic rollers. Then, in morse from a hand-forch, message to say that it was one of the missing boats.

We thought they would be hungry after at least four days and nights at sea," lot Officer Robinson, the Sunderland's navigator, "so I filled a Mae West with of our emergency rations—milk, orange juice, chocolate and food extracts and it overboard. We saw it picked up."

e officer in charge of the boat, when he eventually got ashore, described how he ard a plane flying round from midnight to 4 a.m., but he was afraid to signal returning the a German. Then, in the half-light, he was able to see the aircraft ked sending the message. The hurriedly scribbled note in the dropped supplies than that help would seem be an the way about the service of the serv them that help would soon be on the way was a great comfort. A merchant contacted the boat later in the day and eighteen survivors were taken on board. anwhile the search continued. The net result of two more days' patrols was hting by a Sunderland and a Catalina of an empty lifeboat. The next day, r, brought more success. A Sunderland of a Canadian squadron spotted a boat red sail. Seven hours afterwards a Fortress, after hours of intensive searching, d a second boat roughly sixty miles to the north of the other.

e Navy switched a destroyer to the area and the following morning another ight men were safe. A young American airman in one of the boats, impressed accuracy with which supplies were dropped, declared: "If that guy up there

combs as well as he throws us biscuits, I'd hate to be a Jerry."

ere was only the captain's boat now to be found. More days of fruitless are by Sunderlands, Catalinas and Fortresses. At last Warrant Officer Gamble, a Fortress, sighted a boat and by signal discovered that it was the captain's d all were alive and well. He had flown a thousand miles before spotting the at he calculated his position and gave it so accurately that another Fortress was rendezvous with him and continue the watch over the open boat. From that t until a destroyer was brought to the scene, a constant watch was maintained ed, water and medical supplies dropped by a shuttle service of aircraft.

uckily for us," said the captain, "the Atlantic was in one of its kinder moods, ough we smashed our mast and had to improvize one with two oars, we made ood progress. No aircraft came near enough to us to signal until the seventh nen we were seen but lost again in the darkness. It was four more days before we een again. We cupped our hands to signify we were thirsty, and from the caded food, drink, cigarettes and medical supplies.

hat night it was like dining in the Waldorf. Cheered by the many notes written pilots above, we fed in splendid style. For cocktails we had orange juice, neentrates for the meat course, chocolate for the sweet, and we washed it down iter that tasted like wine. For soft lights and sweet music we had the comdrone of the aircraft above us and the half-hourly flares. again and again, and one American whose birthday it was declared there would e a greater moment for him than the sight of the Fortress guiding the rescue vards them."

e navigation of the captain had brought his little boat to within 150 miles rish coast.

#### ADIAN PILOT'S STRANGE TOBRUK ADVENTURE

out from a bomber, which a few seconds later crashed into the sea off Tobruk, old F./Lieut. Jack Watts, D.F.C., of the Royal Canadian Air Force, swam es to the shore and for three days and nights, during which time he had no ater or clothes, hid in a cave among the rocks and watched the enemy make eparations to evacuate the port. Digitized by GOOGLE

the fourth day, feeling that he could not last out much longer without food

THE ROYAL AIR FORCE QUARTERLY

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On going outside he found three British military police surprised as he was, but soon made him a substantial brea

F./Lieut. Watts. who is in hospital recovering from Hamilton, Ontario. He owes his life to the fact that as a expert swimmer in Lake Ontario.

making a night attack on Tobruk. Curiously enough it was n

"I was the navigator of the aircraft, a Halifax bombe

I holed up for what remained of the night.

is pretty well all there is to it.

-11th November. I had just released our big bombs when from an anti-aircraft shell. It got us under the bomb bay and as some of the smaller bombs burst. The two port engines went up, the landing wheels dropped and the ship headed out turned back. The captain gave orders for the crew to bal escape hatch and out we went. After my parachute opened down below me. It crashed into the sea. I had no Mae West to swim for the shore, which I guessed to be about five miles I took off my flying boots and socks and undid my shirt. water I released my harness and took off all my clothes. towards Tobruk, guided by a huge fire. The fire was put of and I had to use the stars as a guide. After swimming for about the stars are a suited and I had to use the stars as a guide. the shore. It was still night when I got there. The beach was up among the rocks and found a sort of cave—it really was only

'Next morning I saw a German sentry patrolling the bead mile away from my hiding place, and there were other figures a They appeared to be a demolition squad. I also saw three ships the Germans were about I staved in the cave. I was there for without food or water or clothes. It was pretty hot in the Nobody came near my hiding-place and during th enemy making what appeared to be preparations to evacuate the p a lot of equipment and there were fires at night along the har was getting pretty weak. There was a building about half a r had watched it carefully without seeing any sign of movement I knew if I did not do something to get food pretty soon I s save myself. I found the building deserted, and what is more I for some water, and a can of tomato juice. After I had dressed at juice I went to sleep. Next morning I was awakened by the som I heard English voices. I went outside and found three Britis They were just as surprised to see me as I was to see them. had been evacuated by the enemy and then they made me a fine

#### ARMY CO-OPERATION COMMAND OF

Ox 30th November, 1040, Army Co operation Command of the Air Marshal Sir Arthur Barratt as its A.O.C.-in-C.

The announcement of its formation was greeted as though British air tactics had taken place. The birth of British military of the Royal Figureers at Larkhill some years before the last The purely military role of the Royal Flying Corps was overloc stages of the Great War the bomber, fighter and reconnaissano the servants of the Army. Later the Royal Plving Corps, rem-Force, gained its independence and weards the third arm of atta But when that independence came, certain squadrons retained

fight mainly in the air and on the sea, it was not considered necessary to form rate Army Co-operation Command. The fall of France changed all that.

ne Army Co-operation squadrons formed the nucleus of the new command, whose as to work hand-in-glove with the Army and to operate under the instructions Army commanders.

order that the fusion of ideas might be greater than it had been in recent years, ain number of Regular Army officers were seconded to the R.A.F. to work ionally in the Command. The idea, which in reality was far from new, worked iely w**el**l.

the space of two years ending November, 1942, much had been done to ensure

ne Army is given all the support possible.

ne of the tasks of the Command, of which little has been written, was to reinforce A.F. in the Middle East. It is now common knowledge how well those pilots ir Hurricanes supported the Army throughout the various campaigns. They their experience in Britain and put it to the test against the enemy in the desert. ad the Command achieved nothing else in the course of two years, its success va and Egypt would surely have proved to the doubters that this "new" Command

lly justified itself. uch has been accomplished within the Command, apart from the training of to support the Army in the Middle East. They have been taught how to give

t wherever they may be needed.

or months intensive training was carried out, first in Lysanders, then in Tomahawks stly in Mustangs. The change-over from Lysander to single-seater fighter was lutionary change which necessitated the pilot doing the work previously done pilot and an observer.

ne visual and photographic reconnaissance made previously at a leisurely speed a fair height had to be done at a speed of hundreds of miles an hour and at zero feet. Careful training and a cleverly placed mirror gave the pilot visual equal to that of a six-eyed man. He could look, almost simultaneously, on ound in front of him, behind him, above, and to the right and left of him. A was also taught to navigate correctly and to make pencil notes of anything of

y importance he saw below.

aring this training the pilots were mixing with Army personnel, and so gaining edge of Army strategy and tactics. At the same time, with Bomber Command ghter Command they took part in numerous exercises.

due course, operating with Fighter Command, they carried out sweeps across as. They have on many occasions wrought havoc in attack on the northern , Belgian and Dutch railways. At Dieppe, with conspicuous success, they played le intended for them—air support for the Army.

connaissance, though important in Army co-operation work, is but a small part Command's activities. Light bombers are piloted by crews especially trained in of giving support to troops. Apart from the machine-gunning and bombing anced elements of the enemy, they lay smoke-screens or drop smoke bombs, in to hide from the enemy the activity of our troops on the ground.

of the Command. Army officers and men are trained together at special R.A.F. Also, personnel of the Airborne Division are given air-experience to accustom o aerial transportation. The initial training of all glider pilots is done by the , and for some time this work was carried out by Army Co-operation Command;

w, however, the responsibility of Flying Training Command.

part from the training of reconnaissance pilots, the training of light bomber the tugging of gliders, and the dropping and training of paratroops, the Comperforms numerous other important tasks. These include the flying of drogues esent hostile aircraft for the purpose of training anti-aircraft gunners, and the g of the R.A.F. Regiment in aerodrome defence

e day is not far off when the name of Army Co-operation Command will be as

1

1

## **BOOK NOTICES**

"FLIGHT" HANDBOOK. Compiled by the TECHNI-CAL STAFF OF Flight. 224 pages. (Flight Publishing Co., I.td., Dorset House, Stamford Street, London, S.E.1; price 6s. net; by post, 0s. 5d.)

This practical handbook contains all information necessary to acquire a working knowledge of the theory of aeronautics, and shows in language easy to understand how theory is applied in the various designs of aircraft, and the methods of construction employed in their manufacture. Throughout, the object has been to explain, and to assist the reader in understanding, the more important aerodynamic and structural principles, without recourse to mathematics. A new power section has been added.

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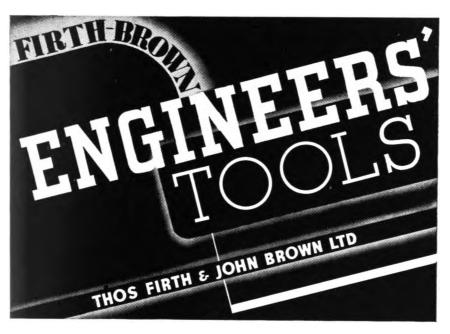
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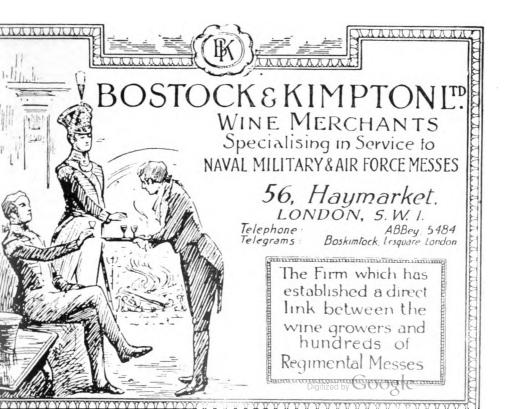
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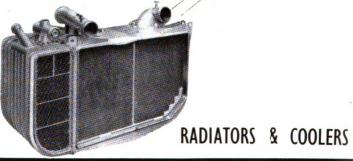




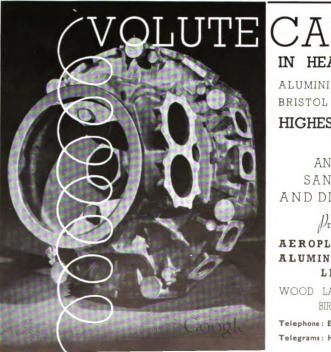
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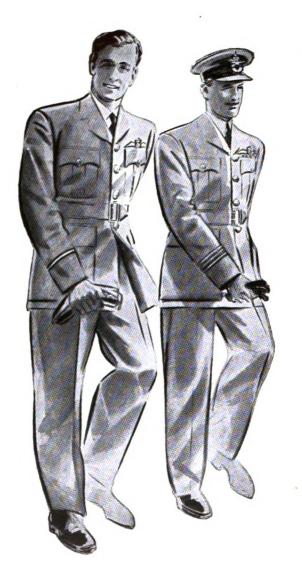
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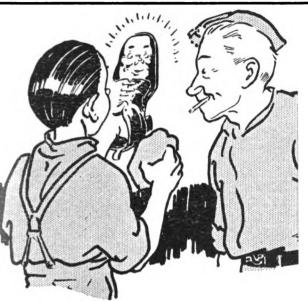
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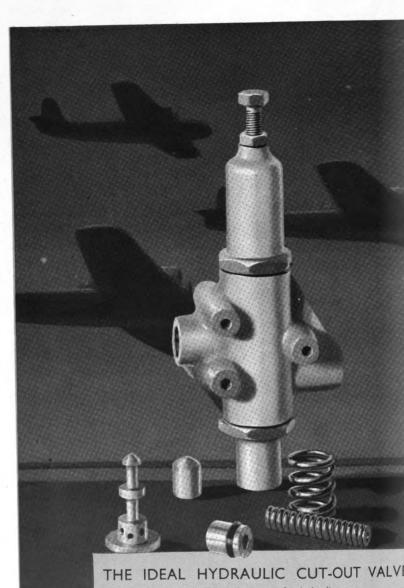
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# THE ROYAL AIR FORCE QUARTERLY

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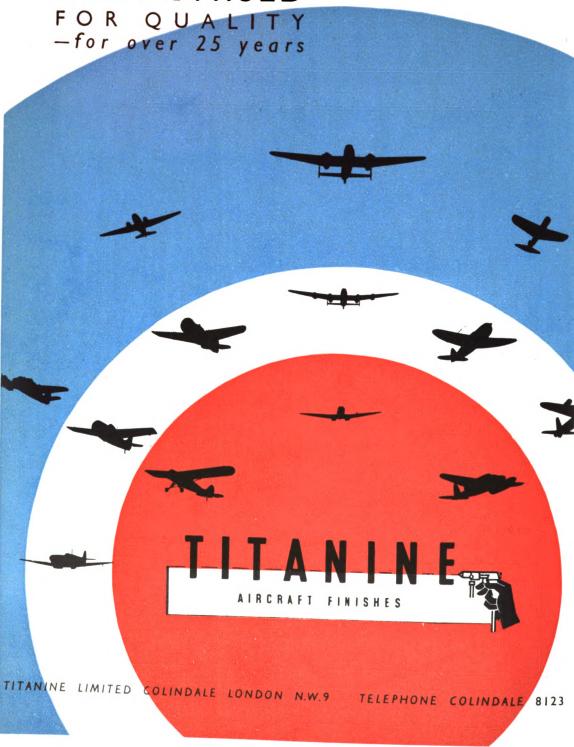
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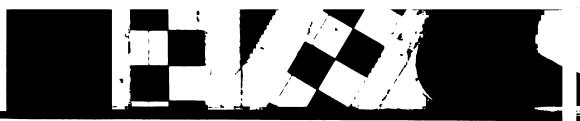
"Over Egypt a Spitfire climbed to nearly 50,000 feet to shoot down a Junkers Ju 86P high-flying reconnaissance monoplane . . . . This must have been the highest combat ever fought, and is another proof of the magnificent quality of the Supermarine Spitfire and its Rolls-Royce Merlin motor."

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#### V.C.

Wing Commander Hugh Gordon Malcolm (Deceased), No. 18 Squadron.

cer commanded a squadron of light bombers in North Africa. Throughout his a that theatre his leadership, skill and daring were of the highest order.

Toth November, 1942, he was detailed to carry out a low-level formation attack to airfield, taking advantage of cloud cover. Twenty miles from the target the me clear, but Wing Commander Malcolm carried on, knowing well the danger reding without a fighter escort. Despite fierce opposition, all bombs were within the airfield perimeter. A Junkers 52 and a Messerschmitt 109 were shot many dispersed enemy aircraft were raked by machine-gun fire. Weather consecume extremely unfavourable and as a result two of his aircraft were lost by another was forced down by enemy fighters. It was due to this officer's and resolute leadership that the remaining aircraft returned safely to base.

28th November, 1942, he again led his squadron against Bizerta airfield, which abed from a low altitude. The airfield on this occasion was heavily defended use and accurate anti-aircraft fire was met. Nevertheless, after his squadron used their bombs Wing Commander Malcolm led them back again and again to be airfield with machine-gun fire.

se were typical of every sortie undertaken by this gallant officer; each attack was to an effective conclusion, however difficult the task and however formidable estition.

lly, on 4th December, 1942, Wing Commander Malcolm, having been detailed close support to the First Army, received an urgent request to attack an enemy cirfield near Cheuigui. Wing Commander Malcolm knew that to attack such tive without a fighter escort—which could not be arranged in the time available—e to court almost certain disaster, but believing the attack to be necessary for ess of the Army's operations, his duty was clear. He decided to attack. He with his squadron and reached the target unmolested, but when he had ally attacked it his squadron was intercepted by an overwhelming force of enemy

ally attacked it his squadron was intercepted by an overwhelming force of enemy Wing Commander Malcolm fought back, controlling his hard-pressed squadron mpting to maintain formation. One by one his aircraft were shot down until aircraft remained. In the end he, too, was shot down in flames.

g Commander Malcolm's last exploit was the finest example of the valour and ing devotion to duty which he constantly displayed.

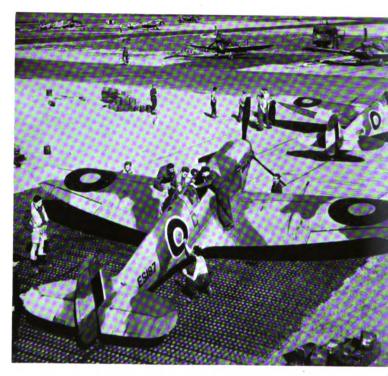
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SERVICING SPITFIRES ON A NORTH AFRICAN AERODROM





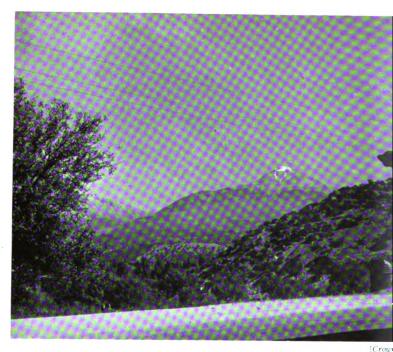


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# THE COMRADES OF THE ROYAL AIR FORCES ASSOCIATION

To safeguard the interests of serving and ex-service personnel of the air forces foster esprit de corps both now and after the war, the Air Council reaffirm that omrades of the Royal Air Forces Association is the one officially recognized ation.

- The objects of the Association are as follows:-
- (i) To foster good fellowship, to encourage and promote social gatherings nongst members of the Association, to facilitate service by members to one other, to perpetuate the comradeship which commenced during service in one of e Empire's air forces, and to co-operate with and contribute to approved charities voted to the welfare of ex-air force personnel.
- (ii) To advise and assist members in obtaining service and other pensions, sability awards, etc., and in obtaining suitable civilian employment.
- (iii) To advise and assist members regarding financial and business matters upon hich they may seek advice.
- (iv) To co-operate with any department of H.M. Government and any organition having the same or similar objects as the Association.
- (v) To print, publish and distribute from time to time an official journal of the ssociation. The journal is at present distributed to all members monthly, free of
  - (vi) To create or promote any subsidiary organization for the mutual benefit

its members.

Membership is open to all serving officers (male and female), airmen and airof the Royal Air Force, its reserves and auxiliaries; also to those who have

with the Royal Naval Air Service, the Royal Flying Corps and the Royal Air (including reserves and auxiliaries) provided they did not leave the service on it of misconduct. Dominion and Colonial air force personnel are also eligible, of application for membership are being distributed to station orderly rooms or e obtained from the General Secretary, Comrades of the Royal Air Forces Asso, 10, Norfolk Street, Strand, London, W.C.2.

To ensure that the Association can fulfil its objects and offer facilities comparable nose offered by any similar body, all officers' and sergeants' mess committees and the committees, at home and overseas, are invited to subscribe voluntarily to the ation with the effect from 1st January, 1943. Subscriptions might be at the rate, per annum per 100 personnel (excluding Dominion and Allied personnel), gh as indicated in para. 3 above, members of the Dominion air forces will be need as individual members of the Comrades of the Royal Air Forces Association,

ot desired that members of those forces or of Allied air forces should be included bulk numbers on which it is suggested that unit subscriptions should be based.

Committees which decide to support the Association should arrange for cheques forwarded each half year to the appropriate command accountant, who is to d to the Association's general secretary a draft for the amounts received.

C.Os. are requested to give their full support and to afford every facility for the pment of the Association by encouraging enrolments and the formation of locales of the Association. Full instructions on the formation of branches will be



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### IEW LAND-AIR TECHNIQUE FORGED IN AFRICA

ist issue of the R.A.F. QUARTERLY we described the air operations which played we a part in the Eighth Army's advance from El Alamein to Tripoli. The capital colini's African Empire fell on 23rd January and a few days later the last of the were out of Tripolitania. It is from this point that we can take up the story gnificent example of army co-operation, a story which had a fitting climax in fic and unprecedented air assault which broke the Axis forces in central Tunisia May and paved the way for the dash to Tunis.

6th May, General Eisenhower's communique stated: "Taking advantage of

e air domination and making the most concentrated air attack of the war, the Vest African Air Forces blasted a path in advance of our ground units. More oo sorties were flown by the Tactical Air Force alone in direct co-operation with very

reference to "complete air domination" was the most positive statement of supremacy that had ever appeared in a communique from North Africa or relese. It was borne out by the fact that during the whole of the morning the assault was at its height the only enemy aircraft seen over the battle area our Focke Wulfs. The bombing by Bostons, Mitchells and Marauders was conditional area four miles by 1,000 yards, an area which was so thoroughly that there could not have been much of it left untouched. It was the sort that had its tactical beginnings in the "Boston tea parties" devised by Air larshal Tedder before the Battle of Egypt. It will be remembered that these livered against the Axis forward air bases with devastating effect, hombs being

larshal Tedder before the Battle of Egypt. It will be remembered that these livered against the Axis forward air bases with devastating effect, bombs being cally placed at intervals of a few yards—and no overlapping allowed. On 6th is plan was put into operation on a larger scale than ever before. A detailed on of its destructive power is what happened at Furna, an Axis strong-point. It is by light bombers in waves of eighteen at two-minute intervals was so ul that a second raid planned was unnecessary.

er the capture of Tripoli the Western Desert Air Force, while continuing to he enemy in the battle area, concentrated mainly on his supply lines and ports, this the North-West African Air Force and aircraft from Malta co-operated. repeat performance of the softening-up process which preceded El Alamein, but le purposes at this juncture the Allies were hampered in the south by lack of rward bases, and the seriousness of this was demonstrated by the enemy success serine, where for a few days in February it looked as though our troops were

o suffer a damaging reverse.

e enemy was out to capture the important railway junction and base of Tebessa sable to concentrate air power in the area chosen for attack, whereas the Allied bases were on the flanks and at one time out of range. This gave the Axis ary command of the air and for a few days it looked as if it might prove decisive. Airfields had been lost. But the situation underwent a dramatic change in our when a powerful air blow was struck at the enemy troops by long-range heavy dium bombers. In three days much of the lost ground and the three airfields captured and the enemy was in full retreat. Fortresses took part in this attack was the first occasion on which four-engined machines had been used to do a straffing job usually left to fighters and light bombers. They were successful

ne was lost. The opposition, which was slight, came from light ground antifire of the sort that an army in the field might be expected to put up. Whether lated instance of using heavy bombers to drop scores of anti-personnel bombs to lead to more extensive use of this kind of attack remains to be seen. Against well protected by light guns it might be too costly. What Kasserine did show hat the heavies are useful in an emergency and it might be said that their mere be over a battlefield should have a damaging effect on the morale of the enemy.

e beginning of March saw the Eighth Army once again face to face with Rommel

pressed day and night from all sides, and in combat steady toll enemy, losses averaging about two to one in our favour. Lightnin were doing well against enemy fighters. With the arrival of Mareth an important step was taken in the unifying of the air com Desert Air Force was detached from the Middle East Comman Africa the titles of "Tactical" and "Strategical" air forces Tactical force, comprising fighters, fighter-bombers, light bomber craft, had the task of supporting the armies; the Strategical force States heavy and medium bombers and British medium bomber attacks on enemy bases in Tunisia, Sicily, Sardinia and southern

integrated with that of the bombing force of the Middle East C including that of Malta and Middle East, were united in the Mediter

under Air Commander-in-Chief Sir Arthur Tedder.

shot down fourteen intercepting fighters.

victories of great significance.

being yielded. In the air the attacks on communications, ports

When the Battle of Mareth began on 20th March air support was even more intense than at El Alamein. In addition to the attacl bombers and light bombers the enemy's defences were pounded bombers carrying 4,000-lb. bombs, a weight previously used only The tank-busting Hurricanes also played a prominent part in the Mark IId with a 40-mm cannon slung under each wing, is the most ever used by either side and it played havoc with Rommel's armour. these Hurricanes, with fighter escort, were reported to have accountants, the attack being made not on single units as hitherto, but of

Like the Stuka, these heavily armed fighters need local air superio effective and this condition certainly prevailed over Mareth and El The Eighth Army turned Rommel out of his Mareth positions pushed on after the retreating enemy. Weather slightly hampe force, but the Strategic kept up the attack on ports and air bases. was notable for the raid on Sardinian airfields by the biggest force out on one operation from North Africa—100 Fortresses. They craft on the ground. Without loss to themselves the bombers and

The Allies were now on the move on all fronts. The Eighth A States 2nd Corps joined hands in the Gafsa area; the First Army ad Allied command of the air was everywhere apparent. On 3rd April victory over a formation of twenty Stukas which attacked the Amer them were shot down by twelve Spitfires and only one of the Stul Me. 109's and F.W. 190's attempted to intervene.

April was to prove the Allies undisputed masters of the air. Allied communiques show that in that month the Axis lost 633 aircr a few short of the total Allied losses for the whole North Africaddition they lost scores of planes destroyed on the ground—over El Aouina alone. Allied losses in combat were 195, so we had a victory in the month's air fighting. April was notable for the cripp Axis transport aircraft flying between Sicily and Tunis. Strategical A and Mitchells began the good work and later in the month were joine Tactical force, released by the lull in the south. Constant patrol over the sea, and in spite of their escort the enemy formations of slehardly ever escaped detection, and on one occasion an entire forma Me. 323's was wiped out. In these attacks on the Axis supply line is destroyed. Their carrying capacity was 636 tons of supplies or a lit

equipped German soldiers or, of course, a proportion of both.

By the middle of the month the Allied land ring had tightened

e left with nothing but a string of emergency landing-grounds between Sousse is. The result was congestion, for they still had plenty of aircraft. It was a position for the Axis because these congested airfields were excellent targets Allied airmen.

il was the peak month and the intensity of the operations is worth recording. operated every day and on twenty-eight nights. In daylight never less than es were flown, rarely less than 600, and on several days more than 1,000. In to attacks on every type of land target thousands of anti-shipping sorties were dozens of vessels of all sizes were destroyed or damaged. Malta, to whose offensive power had been added the Mosquito fighter-bomber, joined in the y attack, the island's aircraft operating on twenty-seven days and twenty-five Over 1,200 sorties were made, some 700 being bombing attacks, more than-shipping and nearly fifty in anti-submarine patrols. On 27th April Malta's

shot down their one-thousandth enemy plane.

ong the many activities of our air forces in the final stages of the campaign is against shipping by fighters and fighter-bombers of the Western Desert Air part of the Tactical force) were among the most interesting, tactically speaking craft which, since El Alamein, had been used in close support of the Army against gets, were diverted during a lull in the fighting in the south, thereby giving her illustration of the flexibility of the independent air force. This move proved ssful as had the decision to detach Strategic and Tactical units to break the

ssful as had the decision to detach Strategic and Tactical units to break the air supplies across the narrows. Many ships were sunk and damaged, and them a destroyer which was sunk by a Kittyhawk fighter-bomber carrying combs. With the light and medium bombers these fighter planes eventually a Axis chances of an evacuation following our initial break-through on 6th May.

fighter-bomber has been the backbone of the close-support force throughout le African campaign. It was born in the Middle East and it has proved itself d in Europe to be superior to the dive-bomber in many important respects, combative once its bombs are dropped, can make surprise low-level attacks, operate effectively without fighter protection. It is essentially a fighter carrying usually two of 500 lb.) and is not a substitute for the light bomber, nor is it a liber in the limited "Stuka" sense. There is no disputing its effectiveness as itstraffing weapon. As such it is something of a battle winner. And in recent there have been many signs that the Germans are of this persuasion. In 7, just after the Axis had failed in their attempts to dislodge the Allies in south-Tunisia, the Air Ministry made some interesting comments on the subject.

as stated that contrary to what is frequently asserted German faith in the dive-

appears to be waning. At the time of the Battle of Britain the German firstngth of Stukas, which is the only type of true dive-bomber the German Air
s ever possessed, was over 500. To-day there is good reason to believe that it
e order of 300, so that the dive-bomber is waning in the battle-order of the
Air Force. Our air forces are now increasingly meeting with ground-attack
led Schlacht units. They consist of fighter-bombers essentially similar to our
he Germans employ in these units all their well-known types of single-engine
Messerschmitts 109 E.F. and G. and Focke Wulf 190. The extent to which
upon fighter-bombers now is shown by the fact that at least 80 per cent. of
my support work done by the German Air Force in connection with Rommel's
reat from El Alamein to Castel Benito was performed by the single-engine

tendency for the German Air Force to rely decreasingly on Stukas and gly on these Schlacht units with fighter-bombers is shown by the fact that since mn of 1940 the production of Ju. 87's has been allowed to decline. Certain is of Ju. 87's have been allowed to go out of existence altogether. and have red from the order of battle of the German Air Force. In the German offensive

ombers.

number of fighter-bomber sorties. There were about fifty Ju. about forty were present at the battle. The continuing mis-reimportant forces of Stukas of Ju. 87's in the Mediterranean the on Allied troops may be attributed to several factors, of whice recognition, especially on the part of troops not well experience. On many occasions later evidence has led to the identification of to be dive-bombers as fighter-bombers.

For example, in the Southern Tunisian battle many of the a

to have been carried out by Stukas were in fact the work of fig example of this erroneous identification is afforded by reports south coast. These are frequently reported as dive-bomber atta carried out, however, by fighter-bombers. The causes of the Al Tunisia, so far as the air is concerned, are to be found in the concentrate superior forces not merely and not principally of dive of all kinds as well as indeed of ground forces at the particular by him for the battle.

The German Air Force in Tunisia had been approximately ference to that province of the air forces formerly in Tripolitania it was not possible for the Eighth Army and the Air Forces with of battle. Hence the entire weight of the combined enemy for against the Allied forces available in Tunisia. It is also clear the El Alamein the German Air Force suffered prodigious losses extensively."

Very many valuable lessons have been learned by the army are and we shall have to wait to see how they are applied in future thing has been definitely and clearly established: a close and perbetween the soldier and the airman. It has been hard won—a mar with a honeymoon in Tunis. The old distrust and indifference in its place has come the closest possible integration of effort. No for improvement in detail—there is bound to be—but broadly spatrategical and tactical, has been brought to near perfection. Sold side by side, laying their plans. In the field the commanders live to

the soldier indicates the strong points which he expects to give tredirects has squadrons against them.

The theory of co-operation is now well understood and it happlied. But the success depends on two factors, and these happresent and may not always be present in the future: superior supremacy. The second should follow from the first, but it is not the battle area much depends upon the possession of fighter bases. In the matter of bases the Army can help the air. "In a presentis always bound to be a furious air-to-air struggle for supremach Leader John Strachey in a recent broadcast. "It is only to the extent on top in that air-to-air struggle that you can turn your full attent enemy on the ground, and at sea, in combined action with your or

enemy on the ground, and at sea, in combined action with your or forces." The overwhelming supremacy which we eventually won one time rather remote; we were no more than holding our own. hope to start with sufficient aircraft to force the issue at the outset Egypt the Western Desert Air Forces did win the air struggle and their long advance across the desert the Eighth Army had nothing

Luftwaffe.

Of course, this army and air force co-operation has become much

a matter of close support. That has been outgrown and the concembracing. In its way the work of the Strategic air force was as Army as was that of the Tactical, though the soldier who can see the doing its job on the spot may naturally rate its work higher than the dropping bombs on a supply base two-hundred miles away. The b

of sunk and damaged ships, some of the few that had eluded the Navy. In ng stages of the campaign we saw how the Navy's task in frustrating evacuamade easier by the Air Force blitz on the beaches and small shipping inshore. vious that close co-operation between sea and air in such circumstances can v loopholes—always providing that the aircraft are used in large numbers. r Africa we should hear no more of the clamour against an independent Royal

ntrinsic part of this new weapon of unified land and air attack is organization, his department much has been achieved. Without first-hand experience it is ible to describe in detail what has been done but the scale and intensity of ations in the big battles of the past seven months show that the men on the are able to cope with a situation that demands between two and three thousand in a few hours. In supply, too, there have been many improvements. Air has been used on an increasing though still small scale, and we had experience oving of whole squadrons by air in the pursuit of Rommel from El Alamein. Africa our own transport force has been supplemented by American Douglas and it is clear that for effective supply great numbers of transport planes will d. Other advances in ground organization have been the creation of the R.A.F. t, which first went into action in the Battle of Egypt when it captured some and the special servicing commandos, fast mobile units which are used to the aircraft occupying hastily created forward bases. In the desert the part of these landing-grounds in advance of the Army was a special problem and the was done in co-operation with the Royal Engineers. In Europe the problem be quite the same but the experience gained in the desert in mobility and in organization will be of great value.

lly, what of the merits of the opposing aircraft upon which depends the result ir-to-air struggle? Africa has proved that the single-seat fighter is the basis of ery, and in that category we hold a trump card in the Spitfire. The Mark IX, presence in Tunisia was reported, can outfight the enemy's best. Backing ort-range supremacy the Allies have the powerfully armed Fortress long-range. The two are complementary and their combined hitting power is of major acc. Behind these two come a string of first-class machines—Hurricanes, wks, Warhawks, Airacobras, Beaufighters, Wellingtons, Liberators, Bostons, and Lightnings. It was this array of types that gave the Allies such flexibility striking power. There is quantity and quality here, and while a diversity of its our strategy and is necessary to it we cannot afford to overlook the paramportance of all-round supremacy in fighter aircraft. If the enemy could a winner in that class our growing mastery might be temporarily upset. We ched a point now where the Allies must keep ahead.

rscript.—Air Chief Marshal Tedder, in one of his rare public statements, made g prophecy when he reviewed the Tunisian campaign on 15th May. According to the said that in his opinion the Luftwaffe would be the first of the enemy's services to crack. The morale of the German pilots had dropped. Sir Arthured that the Mediterranean sky was clear of the enemy and the Sicilian Straits of Allied shipping. He also reported the capture of more than 500 aircraft, them in good condition.

Arthur said that in many ways the battle of North Africa was a battle for air-Air war was closely linked with naval and military operations but it was necessary he enemy out of the air before effective help could be given to the other During the latter stages of the Tunisian campaign fighter patrols were con-

maintained over enemy airfields.

Archibald Sinclair also spoke about Tunisia on 15th May, giving some figures ustrated the measure of Allied air mastery. In combat between 7th November

number destroyed on Sicilian and Sardinian airfields. (It is impossible to say exactly what Africa and the Mediterranean has cost the Axis in aircraft but it is certainly not

less than 8,000.)

Sir Archibald disclosed that between 23rd April and 4th May the Axis made only 245 bomber sorties compared with 3,000 by the Allies and offered only slight opposition to a total of 14,000 fighter sorties in the same period. A total weight of 10,000 tons was dropped on all targets during the campaign.

## NORTH-WEST AFRICAN CAMPAIGN—THE AIR FORCE BALANCE SHEET

The greatest lesson learnt in the North African campaign is that, provided local air superiority is achieved, no army can withstand a strong attack if that attack follows well-planned air bombardment.

Such local air superiority, however, is not brought about merely by action in the

immediate area of the battleground.

Unlike the Navy and the Army—especially the latter—the area in which the Air Force operates in such a campaign does not decrease as the battle proceeds. The battle area became smaller for the Army with each successful advance of the land troops, until eventually it was confined to the north-east corner of Tunisia. In a lesser degree this

applied to the Navy.

For the Air Force, however, the fighting area never decreased for a moment. It covered the whole vast area of the Mediterranean Air Command; it stretched to the home bases of Bomber Command, whose aircraft had the task of blasting the enemy's communications as far behind his battle front as Turin, in Italy, and Mannheim, in Germany; the Middle East bombers played a similar part in bombing Naples, Bari and Taranto; Malta, so long mainly on the defensive, suddenly took the offensive and played havoc with the enemy's rear communications by shooting up and bombing his rail and road transport in Sicily and Southern Italy and his shipping in the Narrows. Malta's intruder aircraft kept his night air-transports grounded or dealt with those few that managed to take the air, forcing the enemy to attempt the daylight transport of troops and supplies with disastrous results.

These various "behind the lines" operations effectively demonstrated the axiom that the greatest asset of air power is its flexibility—enabling it to be switched quickly from one vital objective to another, both in the inner and outer theatres of the operations.

This use of the whole weight of available air power in selected areas in turn with its concentrated air striking force was a battle-winning factor of the first importance. Half-way through the campaign a vital step was taken—a step which at the time

Half-way through the campaign a vital step was taken—a step which at the time appeared to attract little attention, but which undoubtedly was largely responsible for

the triumphant ending.

Three months ago (i.e., February, 1943) the Eighth Army stood at Mareth with the Desert Air Force. The First Army and the Second U.S. Army Corps were static in the Tunisian mountains with an Anglo-American air force behind them. It was then that the air battle for Tunisia was reorganized and the commands regrouped for the final

phase.

In the course of this reorganization the Tactical Air Force was re-formed and placed under the command of Air Marshal Coningham, who had previously commanded the desert air forces. In effect, all the different air formations immediately engaged in the field of battle, as distinct from those with the task of long-range bombing or coastal work, were grouped together under the name of the Tactical Air Force. This group was given a central direction and plan co-ordinated with that of the Army group. To implement this arrangement the Air Commander and the Army Group Commander—Air Marshal Coningham and General Alexander—pitched their camps together and shared close daily contact not only operationally but in the ordinary amenities of daily life, sharing the same mess. Neither planned any move save in co-operation with the other.

The Tactical Air Force was composed in the west of two fighter groups, one R.A.F. and the other U.S.A.A.F., with a tactical force of both British and American aircraft and crews. In the south it embraced alike the fighter and bomber squadrons of the Desert Air Force. In short, a supple and smooth force with a heavy combined punch to use as a boxer uses both fists.

The two staffs, Army and Air, worked together at the same headquarters in complete harmony and with complete mutual understanding and confidence. Thus by trial in war over a period of many months was evolved a dectrine by which the soldier commanded the land forces and the airman commanded the air forces. Both Commanders operated their respective forces in accordance with a combined army-air plan,

the whole operation being directed by the Army Commander.

The six months' balance sheet of the campaign from 8th November, 1942, has now been drafted by statisticians not many miles from the drone of battle aircraft. From thousands of combat reports the following figures emerge: Between 8th November, 1942, when the first landing was made, and 7th May, 1943, 1,696 enemy aircraft were destroyed in the air for the loss of 657 Allied aircraft. During that period over 20,000,000 lb. of bombs were dropped on docks, shipping, landing grounds, supply bases, armoured vehicles and transport and front-line positions of the enemy. (This figure excludes the results of attacks carried out by the Desert Air Force.)

At least ninety-five ships were sunk by air attack, including one Italian cruiser (the Triester, seven destroyers, two tankers, ammunition ships, freighters, torpedo boats,

motor ferries, landing craft and barges.

The greatest single day's air offensive was carried out on 6th May in conjunction with the successful ground thrusts into Tunis and Bizerta. Over 2,500 sorties were

flown and more than 1,250,000 lb. of bombs were dropped on that day.

During the month of April and the first week in May, despite unfavourable weather, the North-West African Air Force increased its striking power, culminating in the record week ending 7th May. In the one week ending 23rd April over 5,000 sorties were flown, 2,000,000 lb. of bombs were dropped and 240 enemy aircraft destroyed. In the five-week period referred to, 200 Axis air transports were destroyed in the air, comprising 167 Ju. 52's, twenty-one Ms. 323's, one Sm. 81 and eleven Sm. 82's.

A number of dates since the Mareth battle stand out as red-letter days in the air war. 10th April.—Forty Ju. 52 transports destroyed, the Italian cruiser Trieste sunk, the cruiser Gorizia badly damaged and sixty-three enemy aircraft destroyed for the loss

of only three of our aircraft.

13th April.—Flying Fortresses destroyed or damaged seventy-three enemy aircraft

on the ground during a daylight raid on Sicilian airfields.

18th April.—This day witnessed one of the most spectacular air victories of the campaign, when fifty-eight Ju. 52 transports and sixteen of their escorting fighters were destroyed. A total of 98 enemy aircraft were destroyed in a period of twenty-four hours for the loss of eleven allied aircraft.

22nd April.—The Desert Air Force destroyed an entire formation of twenty Me. 323

six-engined transports.

6th May.—The greatest air offensive in conjunction with a land battle.

Significant conclusions may be drawn from the African campaign. The combined full-scale battle attack by air and ground forces has proved equally successful in varied

terrain and despite the strength of the enemy's prepared positions.

The flat desert of El Alamein, the strongly fortified positions in the Mareth Line, the gap at El Hamma, the mountainous ridges of Takrouna and those near Medjez which guarded the Tunisian plain, were all overcome by the extreme flexibility of the Allied Air Forces. Such results demonstrate that the Allies have the right types of aircraft to meet all phases of this new form of co-ordinated warfare and that Allied pilots and crews have developed complete co-ordination and the ability to undertake widely different operations according to circumstances.

The building of the North-West African Air Force, with its three main tributaries—the Strategic, the Tactical and the Coastal Air Forces—was a task greatly hampered

by conditions beyond control.

Until March most of the landing-grounds were unserviceable for long periods, and constant rain delayed the creation of new airfields and slowed up the flow of maintenance



supplies. Despite these adverse conditions all sections of the Eastern Air Command, as it was then known, carried out operations on an increasing scale. R.A.F. Coastal aircraft were constantly on anti-submarine patrol against large packs of U-boats trying to prevent the stream of convoys reaching North African ports. It was one of the greatest submarine hunts in history, as many as twenty attacks being made by the Hudsons in two days. One squadron alone made thirty attacks in a fortnight. Unprecedented success followed these strikes. Coastal R.A.F. fighters by day and night protected our convoys from air attacks and defended congested ports, docks and landing-

American Fortresses and B. 25's carried out daylight high-level bombing attacks on ports on both sides of the Narrows in Sicily, Sardinia, Southern Italy, Bizerta, Tunis, Ferryville, Sousse and Sfax. In December, R.A.F. Wellingtons began raiding these targets by night. In addition, enemy convoys were successfully attacked at sea by

Fortresses and B. 25's escorted by Lightnings.
R.A.F. and American fighters, fighter-bombers and light bombers, assisted by French bombers, were engaged in tactical operations, the fighters in offensive sweeps, and the bombers attacking ground positions and landing-grounds.

Preparations proceeded quickly and by March the air weapon newly organized as

the North-West African Air Forces was ready to strike.

On the southern flank the powerful and experienced Desert Air Force with the Eighth Army was moving quickly through familiar desert conditions. The ring round the enemy was tightening. Such was the position up to the night of 19th/20th March, when the Eighth Army began the final battle of Tunisia by attacking the Mareth Line.

Wellingtons of the Desert Air Force bombed enemy positions during the light of the full moon, while R.A.F. Bisleys and French bombers attacked enemy forward landing-grounds in southern Tunisia. With daylight, the Desert Air Force began a concentrated offensive in collaboration with the Eighth Army, which has resulted in a new conception of co-ordinated attack.

"Shuttle service" bombers-R.A.F. Baltimores, South African Air Force Bostons and Baltimores, American B. 25 Mitchells—operated from daylight to dusk. Kittyhawks and Warhawks (P. 40), fighter-bombers of the R.A.F., Royal Australian Air Force, South African Air Force, and U.S.A.A.F. escorted the bombers and also bombed and strafed independently. R.A.F., R.C.A.F. and S.A.A.F. Spitfires provided top cover and also swept the skies to protect ground troops against air attack. Special squadrons of R.A.F. Hurricanes operated as night strafers and tank-busters.

The full weight of the Desert Air Force was employed and contributed substantially to the ultimate ground advance. This action was the signal for the lashing fury of the

full air stroke by all the elements of the North-West African Air Forces.

From 20th March to 2nd May nearly 27,000 sorties were flown by squadrons from other than the Desert Command. About 1,300 of these sorties were made by fourengined bombers, while 19,000 were by fighters, flying on sweeps as fighter-bombers, as escorts, or as protection to our ground forces. By day and night airfields in Southern Tunisia were constantly hammered. Heavy, medium and light bombers attacked enemy armoured concentrations and transport before the American troops in the El Guettar area. The enemy facing the Eighth Army was heavily blasted by the "shuttle service" bombers and by fighter-bombers. R.A.F. and American Spitfires and American Airocobras joined the battle with low-level strafing attacks and in protective sweeps over ground forces. General Montgomery's flanking drive, which swept round the Mareth line and through the El Hamma gap into Gabes, was accompanied by unparalleled air co-operation.

Light bombers, fighter-bombers and low-flying "tank busters" attacked tanks, armoured cars and the strong positions which were holding up the thrust through the gap. The New Zealanders, co-ordinating close-range artillery and infantry with the air attacks, steadily drove a wedge through the narrow valley. Soon the Mareth line and Gabes were in our hands. Meanwhile, by day American Flying Fortresses assisted the night raiding of R.A.F. Wellingtons and Halifaxes of the Desert Air Force in neutralizing the enemy docks and shipping at Sousse, as well as the landing-grounds at Sfax. R.A.F. Bisleys added their weight to the attack each night, and in all weathers

struck at transport and troops retreating to the north.

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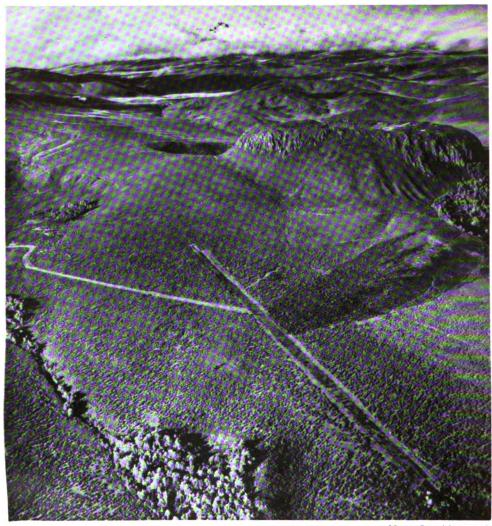
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THE TYPHOON TWO-SEATER FIGHTER.



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A NARROW SUSPENSION BRIDGE SPANS A GORGE IN THE TOWN OF CONSTANTINE.



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#### A RUNWAY ON THE SLOPE OF MOUNT KENYA

East African natives, working from dawn till dusk, built a runway across the rugged moorland on the slope of Mount Kenya, so that an R.A.F. aircraft which had made a forced landing could take off and return to base.

The aircraft had come down on the mountain side above the forest belt. The pilot, a 27-year-old warrant officer from Didcot, Berkshire, led his crew to safety through the forest by following the trails of buffalo, elephant and rhinoceros.

But it seemed as if the aircraft would be a total loss. little damaged in landing, but tangled brush and bamboo and the dense undergrowth of the forest clearly made it impossible for the machine to be transported down the mountain.

An R.A.F. salvage party examined the aircraft and surveyed the mountain; they decided to fly the plane home. One hundred and fifty natives of a nearby Meru village volunteered to build a runway after the District Commissioner had explained the position to them. They carried tents, tools and stores up the mountain in head loads and set to work against time. For the season's rain and cold weather, which is more than the hardiest native can be expected to endure without special kit and housing, was due any day.

From dawn to dark the natives cut heather and brush; they gathered rocks and stones to fill holes; they dragged trees from the forest to bridge gullies. And all the time they watched the skies anxiously for signs of the approaching rains. At night they huddled

together in twos and threes under sheep skins and blankets to keep

warm, and in the mornings had to break the ice for drinking water.

After four weeks the runway was completed. It was long enough for the aircraft to take off and, if necessary, land again if it failed to become airborne. In the meantime other natives had built a road from the aircraft to the runway, and had pushed the machine up the hillside to its position for the take off.

hillside to its position for the take off.

When all the heavy work was done, excited Meru workers stamped up and down the beginning of the runway for hours to make the surface level. The aircraft was stripped of every non-essential part to improve its chances of getting off the ground.

Everything was ready. The pilot climbed into his cockpit and opened up the throttles. The aircraft swept along the runway, slowly gathering speed. Natives ran after it, cheering wildly; they stood and watched it until it disappeared in the sky. Then they clocked had. Bain clouds were hanking up behind them and that looked back. Rain clouds were banking up behind them, and that night the rains broke. Hurriedly they left camp and made their way down the mountain side. Wet through, covered in mud, they slid down the streaming slopes to their village.

But the drenched men went home proudly. They had been chosen to tackle a big job—and they had done it.

The photo shows the runway with the aircraft standing ready for the take off at the end of it. To the left is the road along which the plane was pushed from the place where it landed on the mountain side. In the background are banks of cloud hiding distant mountain peaks. In the central and northern sectors, R.A.F. and American fighters and fighter-bombers were continuously offensive against enemy transport and ground positions, particularly in the Maknassy—Gafsa area. By 30th March the enemy was withdrawing steadily on the central and northern fronts and the Tactical Air Force was engaged in day-long attacks. Fighter-bombers of the Desert Air Force, the southern arm of the Tactical Air Force, bombed and strafed enemy columns, while fighters of the northern arm swept continually over the battle, intercepting fighters of the Luftwaffe when they tried to interfere, and also bombing and strafing ground targets on the northern and central fronts.

During the day of 30th March this concentrated effort resulted in seventeen enemy aircraft destroyed in combat, seven destroyed on the ground and some 300 transport vehicles being either destroyed or damaged. General Montgomery, Eighth Army Commander, in his signal to Air Vice-Marshal Broadhurst, A.O.C., Desert Air Force, expressing his Army's appreciation and thanks, said: "Such intimate and close support has never to my knowledge been achieved before. It has been an inspiration to all the troops; the results have been first-class."

This was the formula employed by the Tactical Air Force for several days. All the important enemy forward landing-grounds of Fauconnerie, El Djem and others were likewise hammered, the same effective army-air offensive being employed as had proved so successful at Mareth. Again the Axis cracked, and on 7th April the Germans and

Italians withdrew to the north.

Flying Fortresses of the Strategic Air Force began a long-range offensive, hitting supply bases and airfields across the Sicilian Narrows and shipping convoys crossing the Straits. An 4th April nearly 100 Flying Fortresses raided Naples for the first time from North Africa. Ships and other targets in the dock area were hit and a number of aircraft were destroyed on the airfield. This was the forerunner of many successful attacks on the airfields of Sardinia and Sicily.

American B. 25 Mitchells, escorted by P. 38 Lightnings, attacked Carle Forte harbour, in Sardinia, and a convoy in the Narrows on the same day. This was the start of a series of successful shipping strikes, the importance of which cannot be over-

estimated.

To supplement their hazardous sea supply routes the enemy resorted to large convoys of transport aircraft. This method of hastily replenishing vital supplies was costly, for on 5th April eighteen Ju. 52's and thirteen other enemy aircraft were destroyed off the Tunisian coast by American Lightnings of the Strategic Air Force. On the next day the same force delivered yet another crippling blow to Axis shipping. American fortresses and Mitchells, the latter escorted by Lightnings, sank or damaged at least ten ships of all sizes and types in the harbour of Trapani, in addition to sinking seven ships in convoy in the Sicilian Channel.

As the enemy retreated northwards along the coast road, light bombers and fighter-bombers of the Desert Air Force continued to hammer transport and troops, while the northern arm of the Tactical Air Force prepared the way for our advancing Eighth Army and American forces to drive on to Sfax. By might R.A.F. Wellingtons and Halifaxes continued the non-stop offensive on Bizerta, and all the roads in the Sfax—Sousse area. This air assault, destructive to morale as well as material, continued until the enemy had withdrawn from Sfax, then from Sousse and beyond until he reached the mountains that formed the natural defence line at Enfidaville.

The Enfidaville defence marked a new phase in the land battle. The enemy had withdrawn to a strongly defended position and shortened his line in the south by

evacuating Kairouan.

The targets for our pilots were more concentrated but so also were the enemy ground defences. The airfield at St. Marie Du Sit was selected for heavy attack. Wellingtons, Baltimores and Halifaxes from the desert raided it by night from the south, and Bisleys and Wellingtons attacked from the west. In addition, Wellingtons began the softening process by attacking troops and transport concentrations in the Enfidaville—Zaghouan areas.

As the Army prepared for its next drive our bombers and fighter-bombers continued to attack harbours in Northern Tunisia and Sicily, seaborne supplies, airfields and rail

junctions in Tunisia.

On 13th April Fortresses made a particularly successful raid on the airfields at Castelvetrano and Milo, in Sicily. Photographic reconnaissance showed seventy-three enemy aircraft destroyed or damaged on the ground. Destructive night raids were made by R.A.F. Wellingtons on Decimomannu, Villacidro and Elmas—three airfields in Sardinia. During this period, despite bad weather, Mitchells and Mauraders of the Tactical Air Force attacked enemy landing-grounds at El Aquina, Cudna and La Sebal, near Tunis. Light bombers and fighter-bombers sought out enemy transport and ground concentrations.

The sting of our air weapon was being felt and was increasing in power. For the third day in succession Palermo was raided by Fortresses in daylight. Photographic reconnaissance showed the harbour blocked by twenty-eight sunken or damaged ships. Sardinia landing-grounds, shipping at Porte Terres and other targets were bombed by Mitchells, R.A.F. Wellingtons carried out night raids on the docks and marshalling yards at Tunis, while Bisleys and French bombers were turned on to Tunisian landing-grounds. Yet another nineteen Ju. 52 transports were shot down by the Desert Air Force, and almost hourly the tempo of Tactical Air Force operations increased. Enemy airfields, ground positions, troops and transport were bombed systematically, while fighters swept the skies over our forward troops and reduced to a minimum the effectiveness of enemy air operations.

During 20th April heavy, medium and light bombers took part in a tremendous offensive and delivered a mighty blow against enemy air and ground forces. The damage on that day was considerable. On the preceding night the Eighth Army had attacked and occupied Enfidaville. Two nights passed and the First Army began its offensive all along the line. The last phase of the battle had begun on 22nd April and the Desert Air Force were again in the picture. This time they struck against enemy airfields, troops and supplies. On the following day a record figure of over 1,500 sorties was established by bombers, fighter-bombers and fighters of the whole Tactical Air Force.

Their task was to soften the Hun for the blows of the Allied armies.

The Strategic Air Force also joined in attacking targets in the immediate battle areas and railways and roads around Mateur. Other bombers attacked shipping.

Bad weather set in during the next two weeks and to some extent air operations were hindered. Nevertheless, the attacks on enemy ships continued unabated, with the Desert Air Force playing a new important role. From their shore bases Spitfire fighters with Kittyhawks and Warhawk fighter-bombers made long flights over the sea to attack convoys. Seriously shaken by repeated losses the Axis was now using shipping in small units rather than big convoys to bring supplies and reinforcements to Tunisia, but our pilots sought out what shipping risked the Narrows gauntlet, and during the last few days of April and the first days of May the enemy was again severely hit. One destroyer, one medium-sized merchant vessel, two E-boats, one F-boat and one motor barge were sunk, and a merchant vessel was left burning. Two landing barges believed to have been carrying petrol were also fired and one other large ship was beached. A motor vessel and a landing barge were also hit and blew up.

Strategic Mitchells and bomb-carrying Lightnings sank another destroyer, blew up a motor barge carrying oil, left blazing two merchant ships and two motor barges. A small merchant vessel and a motor barge were left sinking.

To add to these serious transport losses a single night-fighter destroyed five Ju. 52's as they flew northwards by night towards Sardinia.

Reaching out farther than ever before from North Africa, Flying Fortresses successfully bombed Grossetto airfield, eighty miles north-west of Rome, and later Villacidro, a Sardinian airfield, was attacked by Fortresses and R.A.F. Wellingtons. The docks of Tunis and Bizerta were visited by Wellingtons and on one of their raids a burning ship was seen off Zemor Island. The Wellington crew recorded a direct hit and the ship exploded.

The battlefield in Tunisia had been isolated.

On 6th May, Allied Air Chiefs were then able to prove a long contemplated theory. For the first time in any war sheer weight of air attack blasted a path through heavy enemy positions. The four miles by one thousand yards "carpet" of bombs laid by the Tactical Air Force prepared the way for the advance of our armour before Massicault

and clearly demonstrated what air domination can achieve. When, as in this one instance, 2,500 aircraft sorties in one day can be flown with small loss it means that a way can be cleared of any ground opposition: it means that an advancing army can penetrate the strongest defences.

By six months of "systematic bleeding" of the Luftwaffe the North-West African Air Forces have achieved the supremacy which makes "carpet of bombs" tactics possible.

Paradoxical as it may seem, the failure at the start of the campaign to speedily occupy Tunis and Bizerta contributed largely to this state of affairs. If that early capture of territory had been successful the vast enemy air strength based in Sicily and metropolitan Italy would scarcely have been tapped and hundreds of aircraft would have been able to operate from safe bases against our vulnerable troops in Algeria and Tunisia at a time when our airfields were waterlogged. Instead, during those six months there has resulted a considerable diminution in the strength of the Luftwaffe and a drain on Axis resources, particularly shipping, by R.A.F. bombardment. The result is that we now face the next phase of the offensive with unquestionable local air superiority.

#### PAX AERONAUTICA

MEN of vision must see that, though there are great dangers ahead, there are also enormous opportunities for establishing a better world. If we can grasp this opportunity and use it vigorously there is every prospect of a world co-operation, particularly in the air, that will effectively outlaw war. Victory will be fruitless unless peace can be established on an enduring basis. Air power has made world co-operation possible, and the setting up of a world authority to be an absolute necessity. There are fortunately signs that aircraft will break down many of the barriers that still separate nations, that freedom of the skies will be assured, and that a world air-transport system will be established. It is profoundly to be hoped that Great Britain, with her great traditions and world-wide communications, will take the initiative in propounding these views and assuming the leadership in the new world venture.

If logic and idealism ruled the world we should establish immediately an International Authority for the peaceful adjustment of international disputes and create an International Force to quell any future attempts at aggression. It is encouraging to find that such proposals have many supporters on both sides of the Atlantic, and were the subject of a resolution introduced recently into the Senate. Unfortunately, world opinion changes slowly and is unlikely to accept easily such fundamental changes. Ministers and Cabinets can move only as fast as popular opinion will allow them. It is probable that progress will be made by easy stages.

In the first place, the Force cannot be truly international and representative of all nations since it will not be prudent to allow the aggressive Axis forces to exist in any form, nor to take any part for many years to come in the International Force. The Force should be International in name, but must in fact be organized and controlled largely by the Allied Nations. A broad view of their responsibilities must be taken by the Allied Nations for the Force must include personnel from all those nations who have fought with us for the cause of justice and freedom. These include China, whose people under their great leader have so long resisted the invader; the Poles and Czechs, whose airmen have so gallantly fought alongside our own; the French, the Dutch, the Belgians, the Norwegians and the Greeks.

There is much to be said for putting air power primarily at the disposal of the International Authority. Sir Frederick Maurice, in his interesting study of co-operation, supports the view that air forces can most easily be used as an International Force.

<sup>\* &</sup>quot;Lessons of Allied Co-operation: Naval, Military, and Air, 1914-18", by Sir Frederick Maurice, K.C.M.G., C.B.



"The general conclusion to be drawn from the experiences of 1914-18 is that the easiest form of military co-operation to arrange is that of air forces, the most difficult that of armies. The increasing range and power of air forces seems likely to make their co-operation easier in the future, provided always that a sufficiency of well-distributed air bases, adequately protected, can be found. If and when the organization of international power for the maintenance of peace is required, the first necessity seems to be the establishment of a supreme council, provided with a permanent secretariat. Experience shows that if such a council is to realize the purpose of its existence it must be equipped with the means of enforcing its decisions and from the technical point of view the easiest means with which to equip it is air power."

Furthermore, it is important that in planning for the future we should visualize aircraft as they will be in ten or twenty years time, when the power of the bomber will have been trebled and bombs weighing 100 tons will be practical weapons. At the same time it is evident that an International Air Force alone cannot succeed and needs the assistance of small military and naval units for certain operations. No purely national air forces can ultimately be allowed to remain in national hands, but for a time at least national armies and navies may be permitted, as these, shorn of their essential air auxiliaries, will be no serious menace to the International Authority.

essential air auxiliaries, will be no serious menace to the International Authority.

Control of this International Force must be vested in an International Defence Council, which in turn must be directly responsible to the International Authority. The Headquarters of both of these organizations should be in America, far removed from most of the world's danger spots. The League of Nations experiment showed that an International Authority can function, that unanimous or practically unanimous

decisions can be made, and that sound conclusions can be reached.

Some will doubt whether an International Force will ever become efficient, composed as it must be of men of different nationalities and tongues; but training can achieve much, and there is little doubt that in the course of a few years the inherent difficulties of creating a united and efficient International Force can be overcome. We have numerous examples of loyal and efficient co-operation in war: surely we can achieve equal efficiency in peace, bound together by training and a high purpose. Much depends on a sound initial organization and the world would have no grievance if Great Britain, with American and Russian co-operation, assumed the major responsibility, provided that in the course of about ten years the organization develops into a

truly international structure.

Should this Force be composed of National quotas co-ordinated by an international staff, or should each squadron include men of different nationalities? The latter is obviously the desirable and ideal solution—if it will work. The experience of Fighter Command, briefly described in the R.A.F. Quarterly, March, 1943, shows that Poles, Fighting French, Belgians, Czechs, Norwegian and Dutch are all to be found flying side by side with their British colleagues. Mixed squadrons can become efficient and the individuals quickly learn to appreciate each other's qualities and become internationally minded. The division of the Force into separate national squadrons as a concession to national prestige might well prove to be a grave mistake: it may unnecessarily perpetuate the national barriers which need to be broken down. A valuable lesson can be learned, too, from the experience of the Indian Air Force, which has just celebrated its tenth anniversary. The sharp divisions between religions and customs in India creates a very real difficulty in the political sphere, but such divisions are wisely not allowed to divide flights and squadrons of the Indian Air Force and loyal co-operation has been much in evidence.

For the strategic control of the world the International Force might well be organized into the following five Regional Commands: 1, European; 2, Asiatic or Eastern; 3, African and Middle Eastern; 4, Russian; 5, Pan-American. These may seem to be large regions, but air control over a large area has been made possible by rapid travel and wireless communications. Each Regional Commander needs to have at his disposal a force of all arms and a controller of civil aviation. The latter must control all key international airports and airways, and regulate all aircraft to secure the freedom of the air. Freedom of the air must be established by rules and regulations internationally agreed and administered by the appropriate branch of the International

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Those who have considered the military problem involved are usually inclined to the view that there is no insuperable problem that cannot be solved by men of goodwill—the chief difficulty is said to be the political one. It is fortunate, therefore, that the matter is receiving an increasing measure of support from political leaders all over the world. There are a few who have advocated these principles for many years, and practical schemes have, in fact, been put forward in the past for discussion at Geneva by the French and the New Zealand Governments; but the real necessity for such a logical change in our international structure has only recently been made manifest.

No statesman knows more intimately the strength, the weakness and the possibilities of the League of Nations than did Viscount Cecil, who suggested. "It would be better to abolish all national Air Forces and create one International Air Force for each Region, charged specifically with the duty of preserving peace there in accordance with the directions of the Confederate General Staff." General Smuts, another great statesman, who was largely responsible for the creation of the League of Nations, has warned us that we must return to the principle of the League of Nations, but perhaps build alongside it another organization. The Government and Cabinet Ministers cannot at present tie themselves down to specific proposals for post-war planning, as Mr. Churchill reminded us in his brilliant broadcast to the Nation on 21st March; at the same time general guidance has been given not only by the Prime Minister but by Mr. Morrison and Sir Stafford Cripps, who said in a broadcast to America: "The power of the air, which daily shows itself in growing strength, provides an opportunity which has never before existed for the control of world order. An International Air Force could reach the most remote corners of the world and could strike at any who sought to break the peace for their own advantage."

Some useful purpose can be served by thinking on these problems and preparing our minds for the tremendous changes that must inevitably take place. The failure of the last peace was due in some measure to insufficient preparation of public opinion, especially in America, and the postponement of fundamental discussion until after the war. This must not occur again. Now is the time for the public to clarify its ideas, even before the end of the war is in sight. The conduct of the war cannot be separated from the issues of the peace. In planning for the future we must learn from past mistakes. The League failed, not because it was too ambitious, but because it was too timid. We must plan boldly, for only a strong world authority can restore peace

to our shrunken earth.

#### LIBYAN LOG

By Squadron Leader Eain G. Ogilvie.

(From the book of that title recently published by Oliver & Boyd Ltd.)

#### I.—SIDI BARRANI AND THE SOUTH.

I should think that the unhappiest hours I've ever spent in the desert were passed at Sidi Barrani. Not in the roofless collection of houses itself, but on the landing-ground which the fighters used some miles away. I had thought that the dust-storms at base were pretty deadly, but this landing-ground had them all well whacked.

I think it dated back to the time when there was a considerable amount of cultivation in the district. In one of the flat areas some engineer decided to create a landing-ground. That was all right as far as it went, but the upper layer of soil had been so scratched by generations of Arabs in their endeavours to wrest something from the land and eke out an existence, that within weeks it was hell. When a breeze rose there, the dust came with it and visibility was reduced to about two feet. Goggles, scarves—all kinds of coverings were worn, but they were useless. Kit in the tent was buried under layers of the stuff. A sheet of paper laid down was a quarter of an inch thick with dust in ten minutes.

<sup>\*</sup> A Real Peace, by Viscount Cecil. (Hamish Hamilton.)

The first mess-tent for Wing—and I should warn the reader that hereinafter all this book will deal with fighters and Wing—was pitched in a hole in the ground. Before the battle was engaged and when Wing were due to move out, a masterpiece of sandbagged architecture (combined with digging) was produced. It had a concrete floor and a bar, and could accommodate about sixty at a pinch. That came later. At first there was this hole in the ground through which the dust floated and into which the dust entered and remained.

Beer was drunk, and then a hand laid over the top of the mug (usually an old beer-bottle skilfully dealt with by paraffin or petrol and a piece of wire to produce a drinking glass of a kind) so that the dust could not penetrate.

In these storms all sense of direction was lost. If you had to move about, it was best by compass. Imagine the thickest, most impenetrable fog that London or Glasgow can produce. Instead of that clinging nothingness, substitute a fine powder or dust. Stuff that got into your hair, up your nostrils, into your mouth, covered your arms and legs with a heavy yellowish-white coating. I never felt clean. No one could. Often we packed into a lorry and went to the sea. The salt water washed us, but by the time we had made the return journey all the cleaning we had gained was gone. The lorry, ploughing its way through the muck, had given us even heavier layers.

And yet, in the clear patches and better days, the fighters took off, never knowing when the landing-ground might be blotted out and they would have to go elsewhere to land. Food, of course, was eaten at top speed lest more dust gathered upon it. One or two went out with tummy trouble in those days, but the majority of us survived the bully-cum-dust. Clothes quickly took on different hues as did our caps. My field service cap, known under so many names in the R.A.F., most of them definitely rude, acquired its first real coating of dirt at Sidi Barrani.

Activity in the skies was about normal. Several joint shows were pushed out, when forty to fifty aircraft took the air, humming like hornets and ready to sting, but they met nobody. The Hun and the Eyetie stayed at home and would only play over the convoys going to Tobruk. Even then he had little fun.

A newspaper was produced—I have the first edition somewhere—called the "Sidi Barrani Sandfly"... a mixture of news stolen from the B.B.C. news bulletins and personal cracks at most people in the Wing. That afforded slight relaxation. The main source of enjoyment was Father Theodora. Probably Father Theodora and his Thirteen Little Men deserve a chapter to themselves, but I must mention them but fleetingly

A D.F.C. fighter-pilot was, I'm sure, the originator of Father Theodora. It started as a gag and spread like wildfire, and, months later, in the flesh-pots of Cairo I heard people talking very seriously about the exploits of this "British Agent" in the Western Desert. Almost everything that happened and to which no reasonable explanation could be proffered had been done by Father Theodora and his little men. If a pilot had forced-landed and walked towards some lumps in the ground and found his way back safely, Father Theodora was responsible. "Signals" were received from Father Theodora—messages which, when deciphered from his gibberish, revealed "valuable information."

Newcomers were startled to hear about him and went away, as did many visitors, full of his adventures. A master of disguise, he would be an A.C.2 with a missing lorry one day and a red-faced colonel of the Guards the next. Often, in the far distance on the desert, one could see Father Theodora and his little men riding on their bicycles, but no one ever really met him. When the Stukas landed all over the desert—a mystery I shall deal with later—their descent was put down to Father Theodora's machinations. Phone bells which rang and were then found to be silent when the instrument was picked up, was Father Theodora trying to contact us.

It started light-heartedly, then so many people picked it up that the gag assumed enormous proportions. I would not be surprised to learn that there was an "F.T." file in some headquarters. Father Theodora did not die—he came with us as far as Agedabaia, and then we lost sight of him. We were sure that he had gone further west to prepare the way for our ultimate arrival in Tripoli. He helped us relax, but the situation was changing.

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More seemed to be happening in front and around us. Things tensed just a little, but nothing occurred. I left Wing and went back to base camp for a few days—with the memories of Father Theodora buzzing in my brain, and also memories of a certain "pin-point" on the map, and the Stuka mystery. I've told you about Father Theodora, so let's to the pin-point.

It started one forenoon just before lunch, when I heard that an Me. 109F, one of the then new types of fighters, had been brought down near the wire, and was reputed to be fairly intact. The C.O. wanted some of his Wing to have a look at it

reputed to be fairly intact. The C.O. wanted some of his Wing to have a look at it and salvage what they could, and as I had transport with me I decided to join the party. A wireless officer, a salvage expert, a fighter-pilot then controlling (the originator of F.T.), a photographer and myself, with two drivers and two lorries, made up the

convoy.

We were given the pin-point, and set off that afternoon. We didn't get very far into the desert before night fell, and then we decided to go on by the light of the moon after a meal. We did so, and ended up below an escarpment around or near Sofafi. Dawn next morning saw us trundling onwards, to arrive about seven a.m. at an Indian camp. We decided to inquire there as to our best route, and were a bit shaken to find the officers' mess—much more forward than our own—to have snowy white tablecloths and real china.

They gave us a guide through a minefield not far away, and we restarted. We went through the right gap, and headed westwards and westwards without finding what we wanted. The salvage officer was sure we were heading for the "bag" after we had gone fifteen miles further than expected to the enemy's lines. After a long discussion (and an argument), the majority decided to head south.

(and an argument), the majority decided to head south.

Head south we did, without finding any trace of the Nazi aircraft until there was a dark blob some miles south-west. We moved towards it, and it was only when we were much closer I realized it was an armoured car. We stopped. It stopped . . . then

began to come towards us.

The first puff of a gun from it would have seen us turn and bolt, for we had four revolvers between us. But it was one of ours—one of the K.D.Gs. who were on patrol. We shared some beer with them, chatted for a bit, perhaps more because of the surrounding loneliness of the desert than anything else, and eventually told them our object. From within their car they produced the bits and pieces—or most of them—we had been looking for from the aircraft. The wireless set had been already forwarded to H.Q.

We returned on a compass-bearing over sand and rock that nothing or no one had ever traversed—or so it seemed. It was dark when we returned to wander about trying to find our camp. It was late when we ate, and I slept well after my first jaunt "into

the blue "-then it was more of an adventure than anything else.

#### II.—THE STUKA MYSTERY.

I've mentioned the Stuka mystery. I don't suppose that the true story of the dozen or so Junkers 87's which landed in and about the wire will ever be known until after the war, and then probably through some Italian records. It started one day when the incredible news came through that several Stukas, intact and undamaged, had landed in the frontier area. Prisoners had been captured from some of them, and parties were going out to bring in whatever they could.

I saw about three of these Stukas. One was flown in by a Wing Commander (now dead) and two others, which were miles apart, one near Bir Thalata, the other near Maddalena, close to the wire. In all, at least thirteen machines were accounted for, and the stories they provided were sensational. A search-party found one Stuka with a farewell message in Italian scrawled in the sand, signed by the pilot who had wandered into the desert to find assistance—anywhere, even with us, the enemy. He found death.

Death came to two more. They were found stabbed near a water-bottle, over which it was assumed they had been fighting. The struggle had been a bitter one, according to the scratched and marked ground, and both had bled to death.

The Junkers at Bir Thalata had started to land on a disused landing-ground. An army captain in the vicinity had seen the Stuka come down, and raced out to it on a

small lorry, revolver in hand. He was shot at by the observer, and the pilot attempted to take off with his flaps still down. He went about 300 yards before turning over and

crashing on his back. These two Italians were captured.

The intact aircraft, from near Maddalena, was flown back in stages. One of the passengers, taking the observer's seat at one part of the trip, was a naval officer who was on leave, and who had come out to the desert "to see things for himself." That ginger-bearded officer saw plenty. He was in the Stuka when the pilot pulled the wrong knob or pressed the wrong button, and down they came. Royal Air Force rondels covered the Italian markings on the last portion of the trip, just in case the Ack-Ack decided to fire, but nobody put up a round at it.

Well, there they were. Some in pieces, some destroyed by our forces, a few by the enemy themselves. What happened? Several theories have been put forward, but I believe it was mainly due to the definite unfriendly relations between the German and Italian airmen. The German Luftwaffe were running the show, and the Italians

had to do what they were told and go where they were sent.

The entire squadron may have taken to the air to strike at a particular target. I presume that a rendezvous was fixed with a German aircraft familiar with the target, an aircraft whose pilot's job it was to lead the Italians. The meeting-place must have been somewhere well out in the desert, pretty near the frontier. The German did not turn up, and before they set out the Italians had only been given a sufficient supply of fuel to fly to their rendezvous, bomb, and come home. They must have circled out there somewhere, waiting for the leader. They kept on waiting until they had no fuel left, then they just had to set down somewhere. They could have had little idea where they were—especially the lad who tried to land at Bir Thalata.

That is my conjecture—and it is only conjecture. I heard later that the C.O. of the squadron had been court-martialled. Some day the Italians will clear up the mystery themselves. Perhaps. I am one of the many who would like to know the true story.

During the Barrani period I visited several landing-grounds in the making.

To most pilots these desert landing-grounds were chosen by "someone" who arrived in a car, looked round the desert and said, "There is no possible chance of anyone finding this place. Clear some of the stones and shrubs and these camel-thorn bushes away, and it will be excellent." It took me about two hours' travelling in circles to find the site of one landing-ground, and it was only the merest glimpse of three men

of the R.Es. in the distance that brought me to it.

Yet there is adventure in the creation of these landing-grounds. An Australian officer, responsible for finding most of them in the forward area for some time, spent most of his days in and out of the "wire"—over into enemy territory. I met him in September, when I accompanied a small party to a new landing-ground and afterwards did several tours with him. There was a Group-Captain, too, who went out searching for suitable landing-places. With him one bright morning, just on dawn, when it was really cold, I left to look for a new landing-ground. He mapped out his course by compass across the desert to first one Bir and then another, and we found ourselves in the region near the wire where claypans abounded.

There was nobody near us for miles. Claypan after claypan was visited, the car did runs this way and that way, north-south, east-west—back again, trying to find suitable runways. Twice we left the car alone—and so large-looking—in the middle

of a claypan while fighters appeared.

I had carried a brandy flask for some time, a flask used by my father in the 1914-18 War, but the screw-top part had been broken and I removed it from my hip-pocket to my breast pocket. The first time we saw the fighters come towards us I broke all records for a 300 yards' dash and flung myself on my back beside a bush of camelthorn. As I looked up at the skies I realized something trickling round my neck. Then I smelt the brandy. It was leaking freely. I didn't want to waste it, so I drank the remainder of the contents. It took me a long time to live that down, especially when it appeared later that the fighters were our own.

Our search was moderately successful. We found one claypan which had the right length north-south, and just a trifle short east and west. It would do in an emergency—and actually it was used some time later. The position was plotted on the map and we called it a day, after having a lunch of bully beside the car. Not all landing-grounds

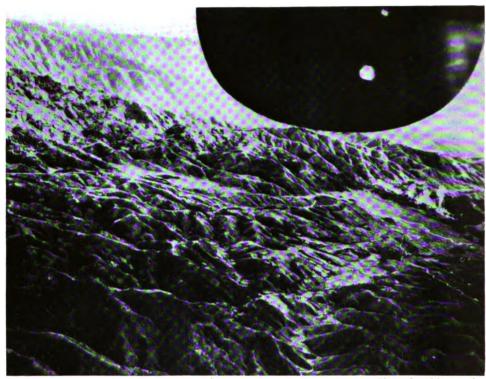


U.S.A. BOSTONS OVER TUNISIA.

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LOW-LEVEL ATTACK BY BLENHEIMS AGAINST JAPANESE SHIPPING IN AKYAB HARBOUR.



[Crown Copyright reserved PHOTO OF THE BURMAH ROAD TAKEN DURING AN ATTACK BY A U.S. BOMBER ON THE JAPANESE-OCCUPIED TOWN OF LUNGLIN.



SALVAGE WITH A SMILE IN BURMAH.

in the forward area were found that way. The Australian I mentioned flew over thousands of miles, in semi-ancient aircraft, landing here and there, checking, pacing and testing the surface. He went out by armoured car many miles into enemy territory and picked landing-grounds under the very noses of the Axis forces.

When the time came for an advance they were available to the squadrons. This work was only part of the immense amount of preparation. Everything was organized,

fuel, oil, ammunition dumps . . . all these were worked out.

By October, everything was set. Only a few knew when the balloon would go up. I had been attached to fighters—to Wing controlling them, and collected the extras I would want to tag along with them.

# NOTES ON A NIGHT FIGHTER

By Flying Officer W. Thomas Cunningham.

ABE had just put the last brick to the fireplace he was building. The two Daves put down their brushes and Mike looked up from some paint he was stirring.

"The Squadron is moving to-day—for good."

China was standing in the doorway and we knew he meant it.

We had been away on exercise for a month and were so glad to get back to Watering but a week ago that we decided, as a thanksgiving to "do out" the crew room and generally see what more could be done to furthering the amenities of our dispersal—known as the Lido. There has been a week of unbelievable activity and now the gardens were all weeded and looking very healthy, a landing-stage had been erected for the dinghy—that was Andy's and Jerry Scrambler's work—and Harry had found it necessary to extend the hen-run (his chicks had become enormous during our spell away). Jay Willie had conceived an illuminated plan of the aerodrome and he and several others were busy on the "prototype."

One cannot throw one's Flight Commander into the lake as one can lesser fry

when they bring unwelcome news, and we could but ask faintly:-

"Where?"

"Swafton Mafeking."

This was a pet name for a station from which we had operated on some ocasions during the early days of the squadron. We were far from impressed. Only some magical sound like "Malta" or "Tunisia" would have saved us from the dumps.

And so, within an hour or two, the advance guard left behind a crew room painted, except for a patch behind the door, with enthusiasm rather than skill, and a handsome new fireplace of red brick built and designed by one of us. Someone else would be taking over the dispersal we had known so long, where the Squadron had first seen the light and acquired not inconsiderable successes; where we had spent many hours, during the day swimming, boating, gardening, fishing, and during the night yarning round the stove, adding pages to the Line Book whilst waiting for a scramble. Would they, we thought, fall under the spell of the Lido and be stirred to continue the activities that had kept us so busy there?

I gave China the course. For once he was not singing (well, call it singing!). There was one consolation in going off ahead of the others: someone else was left to do your packing for you. We kept under a layer of stratus and the earth looked solemn, uninviting and flat. Abe was formating on our starboard. I had watched him while he was busy with his fireplace and had remarked the care and skill which went into his work and his air of intelligent determination. He was an artist working

with confidence and belief in what he was creating.

That night he got a Hun and it was just the tonic he and the squadron needed, and marked the beginning of a successful period of activity. The visibility was poor, the opponent skilful and the chase a long one, as far as the Dutch coast. On several

occasions the enemy got out of sight, but by clever anticipation and with, I am sure, that same look of determination on his face, he found his target and clung on till he

saw him dive into the sea. Abe came back on one engine.

Swafton Mafeking was a dump and it was almost heartbreaking after the higher civilization of Watering—for a few days. Soon we found it had a charm of its own and many good people. Besides we did not have much time just then to pine after things gone. In the first week we had a dozen encounters, resulting in seven confirmed, a damaged and a probable. The C.O.'s plane got hit by our own flak and Dave, his observer, was hurt just as he was closing on a Junkers 88. He got it though, making two for the night. Limbo got his first two Huns and Abe, Jack and Harry one each.

Swafton Mafeking was not such a dump.

• • •

Toby has won the D.S.O. It was in *The Times* to-day. I feel rather sick to know that he has lost an arm and received other injuries and yet proud that he is my friend. "After receiving severe wounds when his aircraft was hit by flak over Sicily this officer went on to bomb the target and continued to give directions to his pilot

until they were over their own territory."

Toby had no desire to win decorations. We shall never again see his daisy-cutter off drive, a stroke that belongs to the poetry of cricket, and it will belong no doubt, like many a good thing, to the past. Characteristically in his airgraph to me all he said was that he was resting from operations for a while and gave and asked some news about mutual friends. Toby who, in those first winter days of I.T.W., invented a sleeping-bag, warm and comfortable, but well-nigh impossible to get out of, who said, when the Padre had given his initial address and spoken of "bright-eyed young men leaving their homes," that it would be difficult to find any eyes as bright as our buttons, who always affected a cynical air, who was found surreptitiously trying the proverbial spit and polish on his boots . . .

. . . .

Why don't they send us out to the Middle East for a prolonged crack at those Huns? To speak of "towering" clouds is trite but it is difficult to describe those built-up cumuli or find a better epithet for their Olympian grandeur. You fly close to them and their vastness fills you with awe and for a moment you are giddy as the carpet of the earth passes quickly below. Their texture, with its silken shadows, is something to marvel at. As you pass inside you are in the quiet of a cathedral close with here and there a shaft of light breaking the sombre gloom. Leaving the cloud you are plunged into sunshine that takes your breath away, so radiant is it, and heightens all the varied tones of the land below. Each cornfield has its own separate colour; every meadow, every plantation and patch of ploughland a score of different shades. You go up on a commonplace night-flying test and see the world as from a high mountain and, mounting higher, the surface looks smoother, cleaner, purer, and moors and highlands the gentler and less formidable. Maps cease to be a confused net-work of railways, roads and waterways and leap to significance as the proper perspective is obtained.

The night scene also has its charm. The full moon spreads a cold beauty over land and water. Silver glitter on the sea, deep shadows from the cliffs and crisp, faraway surf seems frozen to a pale beach. There is a greater comfort when the night is dark and an aircraft is a black smudge to be investigated gingerly without being seen, when the sea is a grey smear and the stars close and as real as primroses on a bankside.

It was a moonless night when we got our Dornier 217, good visibility though, for spring, intensely cold. I had helped to scrape the rime off the perspex before taking off and my hands were numb and gloves wet. It is always as well to start warm and cheerful for it is easy to fall into self-pity on a cold night as the patrol goes on and on. And this night the patrol went on and on and I began to conjure up visions of a bright fire and hot cocoa back at dispersal. Then the cool, far-away voice of the controller "Hello, Dining Room 27, Dining Room 27, are you receiving?"

We are given a northerly course and told to intercept aircraft approaching a point on the coast. This is like a draught of steaming punch; forgotten the numb fingers.

icy toes and weariness from the noise of the engines. We are desperately anxious to add to the squadron's score, to which we have made no contribution since leaving

Watering.

It is a disappointingly long time before we see anything, and we are lucky, too, for without warning a grey shape crosses our bows and hides the stars for a moment. We swing round hard to port, increase speed and then see her exhausts rapidly closing on us and find ourselves about to overshoot. Throttled back and with flaps and wheels down we glide underneath her, praying to God she will fail to see us till we have confirmed that she is a Jerry and got in a suitable position to open up. It is an eternity after I see her swastika that she begins to draw ahead. I am fascinated like a bird before a snake. Will she strike first?

China sent her down with a steady burst of cannon. I think we had the advantage

of being underneath with the dark earth as a background.

A Hurricane boy from a neighbouring squadron went into the sea this morning and we were called out to help find him. To locate a dinghy in a choppy sea with a morning sun on it needs careful searching and perhaps a little luck. Jackie Ellerby found him and it is appropriate that he should have done so. He is a newcomer to the squadron, though he flew in Spits. in the Battle of Britain days with our C.O., who tells how Jackie used to fly as his No. 3. After being shot down twice, once over Kent, where he was "captured" by a good farmer and his wife, and the other time into the sea, it was decided to fly him as his No. 2 in order to break his spell of bad luck. "We went into attack," says Jay Willie, "and sure enough when we re-formed there was Jackie at No. 2 trailing a long plume of smoke." Again he went into the sea but suffered nothing more than getting his hair on fire—since when he lets his hair grow until it curls over his collar.

He is obviously going to be the squadron bard for he has a hundred stories or more—all about "types and kites." Words to him are of the stuff that fairy tales are woven and no one can put quite the same magic into the words "And Jerry rolled on to his back pouring out the most wizard smoke you ever saw."

The Hurricane squadron has invited him to a party to-night. We are waiting for his description of what goes on to-night, and for a good laugh.

Jay Willie called us in and said: "Intruder for you, to-night." China and I smiled across at one another. This was what we had been waiting for. We fancied ourselves at this kind of work and had been "binding" to get on it all the winter, while activity had been slight.

"You'll be given your main objective later and you may have time to collect a couple of locomotives."

We spent a busy afternoon in the briefing room and preparing our flight plan. Position of land-fall, height and approach to target were all to be considered. There would be a full moon and Met. said little cloud, so we decided to fly low with the idea

of surprising the defences.

The engines were singing sweetly as we crossed the sea, a frozen lake of silver, and Balder Rock came up on the port bow. We were off track a little and our groundspeed was greater than anticipated. A revised wind was needed and an alteration of course. Soon we should see the Belgian coast and down we went to sea-level. I checked that the guns were cocked and at "Fire" and quickly conned my maps, memorizing the chief landmarks, for low flying gives little time for poring over maps.

It was rather astonishing though a relief to find no reception as we crossed the coast. From gazing at the bright surface of the sea we were now as if flying in a dark tunnel until our eyes had accustomed themselves to the darker tones, and in a few moments it was as if we were participating in some mad Lewis Carroll railway journey in which roofs of houses, a church steeple, railway lines, trees and ribbons of roads swirled past more quickly than my thoughts could piece them together.

China's voice brought me back from this whirling wonderland. A wide river to

starboard, two parallel canals and a railway and there, thankfully, was one of my landmarks.

"Look out for some high ground ahead and keep the river on your right."

A large town came up—we could see its pall of smoke—and beyond it a large wooded area enclosing two lakes, and our first objective, an aerodrome, was near at hand. Here we decided on a rather bold and foolhardy measure. We had not so far been fired upon, it seemed. They might, therefore, consider us as friendly aircraft. We climbed to a thousand feet, switched our landing-lights on and off once or twice and made as if to land. It was our intention to plant a stick of bombs across the intersection of the runways but I fear they never landed there. We approached with wheels and flaps down and at the moment of pressing the release button the aircraft rocked violently and I knew we had been hit. Three or four gun positions were concentrating on us and tracer was climbing up, slowly at first, and then stabbing past. We were down at ground level again and giving a quick burst at some dispersed aircraft as they came into the sights, and now over the hangars and out to the open country just above the tree-tops, jinking and weaving like a switchback. I could feel the cold rush of air from a tear in the fuselage as I sought on the floor for computer and dividers. There appeared to be no serious damage.

We decided to patrol a couple of railway lines we had in mind as a secondary target. After picking up one or two leading pin-points these were easy to find, though they appeared to be completely devoid of life and activity. It was asking for trouble, of which we had already found sufficient for one night, to fly along them from end to end, so we weaved over them, approaching each time from a new angle. There were a few trucks in a siding and these were saved from a beat-up by the appearance just ahead of the white smoke of an engine. Making a wide circuit and gaining height we swooped down from behind, raked the trucks it was drawing and gave a final concentrated burst on the locomotive before pulling out and soaring up like a lark. The train had come to a standstill enveloped in steam, flames licking up from one or two of the trucks. China decided to keep the remaining ammunition for any possible encounter on the return journey. We had at least drawn blood, avenged the hole in

our side and learned a thing or two.

Up to two thousand feet, some cloud cover while a bank of searchlights was probing for us, an air plot with constant changes of course and speed, and we were over the sea and making for home. Away to starboard a Wellington and a Lancaster passed us, heading for Germany, only two of many whose job for the night was just beginning.

### AT A DISPERSAL POINT

By Katharine Bentley Beauman.

CAROLINE had lost confidence. Months before she enrolled in the W.A.A.F. she had come to the conclusion that she could never be smart or efficient. Her face was not made that way for a start. Fortunately she was good tempered. As she seldom considered the impression that she was making on other people, and was not at all vain, she had not been unduly upset at school when told that her stockings were coming down or that she had forgotten to post a letter. She only wondered in an absent-minded way why other girls found it so easy to get good-conduct marks.

Now she knew that the honour of the W.A.A.F. depended on how she acted and

Now she knew that the honour of the W.A.A.F. depended on how she acted and looked. The W.A.A.F. officer at the Depot had told her so, and the Section Officer at this station thought just the same. Holes in her stockings or a muddle in her head

let down the R.A.F.

"Dunbar, your buttons are a disgrace," said the Section Officer in a voice that everyone could hear at the eight o'clock parade one morning. And Caroline, who had the betraying complexion that usually accompanies red hair, blushed as only Caroline could. It was not for her to try to explain that the boiler had gone out in House 6

before breakfast, and she had helped the other aircraft hand to light it again; and then they had both had a scramble to be in time for roll-call outside the house, before the squad marched through the trees to join up with the others on the parade ground in front of the Guard Room.

She knew she would be unpopular for letting down her squad again. They thought she did not care about the R.A.F.; and she wanted so passionately to help. No one

would ever know how proud she was to be in the W.A.A.F.

Caroline walked through one fog into another. And if she ever arrived at a particular goal it was more by good luck than anything else. She was quite conscious of this, and found the fact discouraging. Good luck was so unreliable. But she kept on

trying.

Books provided her main food for thought.. She borrowed them from the Station Library, read them slowly, and usually forgot to take them back or renew them at the end of the week. Library fines, indeed, absorbed a considerable part of her pay. The books she liked best were ones about heroes and heroines. For Caroline passed most of her days in a mental world of brave deeds. So occupied was she with legendary acts of valour that she hardly felt as real or in any way important the everyday happenings around her. She always hoped that her chance would come to take a place among those galleries of brave men and women. But how that could be was beyond her imagining.

A.C.W.2 Dunbar, C., was down on paper as an aircraft hand, but she was hoping one day to be remustered as a waitress. One of her duties was to go round with a van and deliver dinners to airwomen working out at a dispersal point who could not get back to the Mess in the middle of the day, and then stay there until two o'clock to wait

on the R.A.F. officers.

As she was walking across to the cookhouse later in the morning she remembered that she had not given the message after parade that only two dinners would be needed instead of three in the haybox for the plotters. The plotter who shared her bedroom in House 6 had gone on leave immediately after breakfast, and had asked Caroline to let the senior cook know. Well, it did not matter much, she told herself, philosophically. It was a good thing that her wretched cold had gone; and only if it had not

would she have seen the knot in her handkerchief about the plotters.

When she reached the cookhouse she found that she was ten minutes too soon so she sat down on the steps in the sun. A common sort of voice was floating through the window: "I'll walk bee-side you through the world to-day . . ." The aircraft-hands who were peeling potatoes shrieked with laughter about something or other. They liked to have the radio on as a background to their work. It occurred to Caroline that perhaps the contralto had once swallowed a large potato whole, and its ghost had stuck in her throat. She thought of going in to hear the joke, but then decided to stay where she was. It was safer. She had been late for the van twice already that week, and Ma'am had told her that if she caused any more trouble she would be taken off that job. But she did not want to change. She had it firmly fixed in her mind that if she stuck to one sort of work she would become efficient at it sooner or later.

The van drove up punctually and she helped the cook to put in the hayboxes, and climbed in herself afterwards. She was shy with Cpl. Stubbs, the W.A.A.F. driver. Stubbs was smart and clever and had once told her that she did not suffer fools gladly.

So they did not talk much.

It was a perfect summer day. An elusive lark was trilling a gay song high up in the cloudless blue sky as the van bumped its way across the open field. As Stubbs drove up to the huts, Caroline caught the wailing sound of sirens faintly echoing over the countryside. The dispersal point was too far off to hear the warning on the station tannoy. She stopped looking for the lark, attracted by some black specks in the distant haze. A moment later she was startled by the roar of the station's Hurricanes as they took off to intercept. Stubbs stopped the van and jumped down, while Caroline climbed out as fast as she could. But machine-gun bullets were already whizzing round as the airwomen started to run. They dashed into the nearest hut. A W.A.A.F. telephonist was calmly taking a message while trying with one hand pressed over an ear to deaden the inferno of noise. The building shook as a bomb crashed near. Glass came shattering down.

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"The line's gone," shouted the telephonist after a few moments. "I can't get an

answer."

Glancing through the empty window frame, Caroline could see two wires hanging loosely across the grass outside. Some words of the C.O. flashed across her mind. At all costs, station communications must be kept open. Those wires must be joined.

Neither of the others saw her go out, as a bomb whistled down at the same moment,

landing with a dead thud in the ground behind the hut.

"Oh, it's all right now," said the telephonist a minute or two later. "They must have got shell-shocked at the other end, and recovered themselves."

Then Stubbs, crouching under the table, asked "Where's Caroline?"

There was silence now, the awful quiet that follows a raid.

The two airwomen looked outside. There on the grass lay Caroline, a telephone wire in each hand. They thought at first that she had been killed by the enemy, but found afterwards that she had died of electric shock. The broken wires she had tried to connect had fallen across a power cable. They had nothing to do with the station's vital communications.

Caroline's luck was always unreliable. But she had done her best.

### THOSE WERE GREAT DAYS

By Flight Lieutenant G. Cooper.

Nostalgia comes over me sometimes when I see the keenness displayed by so many members of the A.T.C. Their enthusiasm brings to mind the days of my own youth—thirty years back—when, however, an interest in flying was regarded by most people as cranky in the extreme.

The early pioneering days in any branch of human activity usually seem to be the Golden Age. With aviation this era was from 1908-12. And in Britain its headquarters were at Brooklands, where the majority of pioneers carried out their experiments.

At that time I was at a nearby public school—Charterhouse—but I had to play truant to get over to Brooklands. Real interest in flying was practically non-existent and my own passion was regarded as something odd. My construction of a full-size glider in the school workshops was not stopped, but when I started flying it I was placed under an interdict; the headmaster considered it "against the wish of God," while my father in a telegram simply ordered me "not to commit suicide." Flight at that time severely criticised the "intolerant attitude of the authorities in preventing the first glider built at a public school to be used."

My first flight as a passenger was made on an Avro triplane in December, 1909. Flying in those days was only undertaken when there was a dead calm—usually either early in the morning or around sunset. This meant several visits to Brooklands before I secured the right conditions. Still, on my fruitless days I was able to get much interest from mixing with the early pioneers—a very fine lot of men, many of whom had put every penny they had into their experiments. A. V. Roe (now Sir Alliott Verdon-Roe) was my particular hero. He was the first Englishman to fly, and at this time was having a very hard struggle to keep going. I think he was quite glad of my humble ten shillings, which was the price of my flight.

The Avro triplane was a very flimsy affair. It had a nine horse-power J.A.P. engine, and its wings were covered with oiled paper. Both pilot and passenger sat on light boards set in the open fuselage. When the engine started up we were both smothered in castor oil. Waving a "farewell" to the bystanders we ambled off across the aerodrome. Then I saw we were some ten feet off the ground—one of the most thrilling moments of my life. We had to land again in order to turn, then another

run, a hop into the air, and back once more to where we had started from.

I had flown. . . .

I must have been among the first hundred passengers in Britain, but I had to keep quiet over my adventure for fear of reprisals. Once, indeed, it was even proposed that I should be mentally tested because of my strange hobby! Anyhow, I flew on two or three more occasions in 1910. Those were great days. It was an inventive time in aviation, but design was mostly by rule of thumb. Weird and strange machines ran about Brooklands, many of them never even getting off the ground. Those that did had frequent accidents, so that hours were spent in repairs for every minute spent in

I remember the first time a flight of an hour was made in Britain. It was made by Paulhan in a Farman biplane. I was present, and the crowd must all have had a pain in their necks watching him fly round and round at a height of about 300 feet. When the hour's flight was performed we all cheered like mad. It seemed a historic

In 1909 I attended the First Aeronautical Exhibition which was being held at Frankfurt. The entries were all balloons and airships with the exception of a Wright biplane which was flown by Orville Wright. His machine was launched into the air and he flew round the airfield at a height of twenty to thirty feet. But it was the Zeppelin which inflamed the Germans with the same kind of fanatical hysteria that has been given to Hitler. Everywhere one went collecting-boxes were rattled asking donations towards a fund to buy a new Zeppelin to replace one that had recently been destroyed. Many Germans openly said that their airships would be the means by which they could bring Britain to her knees. The re-education of Germany is not going to be easy, for the roots of their love of world-power is of long standing.

Another pioneer with whom I came in contact was Cody, who carried out his experiments on Laffan's Plain. He had an extraordinary looking machine built largely of bamboo poles, and it was nicknamed "The Cathedral." Cody himself was a real character, of American origin, and possessing an extensive flow of language. When he won the first prize of £4,000 at the first Military Trials held in 1912, which were held on Salisbury Plain, everyone was delighted, although the acquisition of his machine by the Army was hardly of much real use, for as far as I know no one ever could fly

a Cody plane except its inventor.

Those early inventors had a real struggle, for there was little encouragement proffered them. Every obstacle was placed in their way, and the late Lord Northcliffe's

huge money prizes were just regarded as a joke—until they were won.

In 1912 I built my first (and only) power-driven aeroplane. It was the first one constructed in Scotland, and it cost me about £100. The engine was a 30 horse-power Humber, bought at a liquidation sale for £15. The sockets, wire-strainers, etc., I bought from "The Aviator's Storehouse" (A. V. Roe & Co., Ltd.). The propellor was home-made. Even with these conditions the machine was able to hop into the air on Cramond Sands lent me by the late Lord Rosebery, who, however, told me he would take no responsibility for my death.

It was in 1912 that the first looping the loop was made. When, therefore, my machine came down on its nose after landing and turned over on its back the fact was heralded in the Scottish press under the headline: "First Scottish aviator loops the That "loop" brought family repercussions, for once more the matter of a

visit to a mental specialist was proposed!

With the enthusiasm of youth I had created the "Scottish Aeroplane Company" -capital about £5. In the catalogue I offered to build machines to clients' orders;

perhaps fortunately I had no customers, except for model aeroplanes.

When the first flight was made by Army aeroplanes from Salisbury Plain to Montrose-a landmark in aviation-I got my parents to entertain the pilots to dinner, but the next day when two were unfortunately killed in flight it meant definitely the classifying of aeroplanes with Lloyd George (a horror to many people at that time) as forbidden subjects in the home.

To-day modern youth gets every incentive to fly, but only thirty years back it was

very different. And yet I think those great days were hard to beat.

## **TOUGH GUY**

Forcer the Cagney character-studies of the cinema—they will give you no idea of the toughness which was "Gatty's" pride. He was no swaggering, gun-spinning Bad Man, spieling cracks from the side of his mouth. He had the softest voice I ever heard from a grown man, the gentlest manner, the quietest ways. For all that, he was "quite a character" as people say; and he spent most of his waking hours building up the illusion that he was tough. Illusion? Certainly! For it was I, his Squadron Intelligence Officer, to whom he must in duty bound relate his adventures, who witnessed the cracking of that shell with which he surrounded himself. It is a slight story, gaining stature only from the page of history in which it was enacted, and, since that page has already been turned, perhaps I may tell it now.

"Gatty" was a fighter-pilot with a journalistic sense of the dramatic. So his reports, though told with extreme modesty, yet had a certain fluency lacking from the staccato replies which my interrogation evoked from the others. And they were biassed, ever so delicately, so as to lend colour to the narrator's reputation for being

'tough.''

"Gatty" was, in private life, a business man of world-wide interests. He had, in fact, long been saddled with major responsibilities far beyond those usually assumed by men in their twenties. I think, therefore, that his adventures in the R.A.F. in general and his play-acting role of the "Tough Guy" were no more than his denied boyhood belatedly asserting its rights to a little "fun and games."

He looked a good forty years old. The illusion was due not to wrinkles or other uncharitable acts of time, but to a thick-set appearance and an air of maturity. He was, in fact, twenty-six years old, but when you looked at his eyes as he reported his latest adventures you surprised in them a sparkle that was not a day over eighteen.

This extreme zest of life, this constant readiness for a joke, however childish, combined with his assumed "toughness" and his apparent middle-aged maturity to

produce an entirely charming character.

His very nickname is rich with the flavour of that love of adventure and reputation for toughness. It came from the fact that, whenever he set forth upon a sortie which might take him over the enemy's coast, he stowed away in his aircraft an enormous revolver. It symbolized his love of the dramatic, his determination not to let his career tamely end by the side of his wrecked aircraft, and his love of being thought tough. This "gat," from which he took his name, was indeed the most fearsomelooking object. None of us had ever seen any other revolver so large and formidable. He would tell us often that it fired a bullet so large that it would knock a man head-over-heels at a hundred yards.

This reputation which he was thus at pains to build for himself made him a most valuable fighter-pilot for, to the niceties of skilled flying he added the ruthless determination and power of instant thinking which can often turn an apparently hopeless position into a victory and will, indeed, sooner or later save the pilot's life and that of his comrades. "Gatty," in other words, had "dash," that quality of leadership which is perhaps the most valuable. It had, in our case, won for him a decoration and the

command of a Flight.

Now this was the period in which our small but valiant Fighter Force, having made a little history in the Battle of Britain, was now in a position to relax its defensive role and assume a more truculent tone across the Channel. It began with a number of tip-and-run patrols over Occupied France, usually by no more than a couple of aircraft, which encouraged the French far more than the operations themselves warranted, brought us much invaluable news of the Invader's doings and spread an admirable air of insecurity and alarm over his forces near the coasts of France and Belgium. The task, needless to say, was accepted by our pilots with relish and by "Gatty" with something approaching ecstacy. Yet it was one of these daring operations which revealed to me and to "Gatty" that he was not really tough but was instead that finer thing—a gentle man who assumes toughness in emergency.

Fixed in my memory is a grey day, with the "cloud cover" down to five hundred feet. "Gatty" was restless. He smelt action. When "Met" confirmed that similar

conditions prevailed "on the other side" he shuffled all over the hut, glancing at maps, asking me for details of certain canals and roads, ports and railway stations, and conferring at intervals with "Daisy," our youthful Commanding Officer, in "A" Flight's

little sanctum behind the parachute cupboards.

"Daisy," no less eager than he, rang up the Station Commander and "Ops." "Gatty" began to clean his spotless howitzer, as we called it, ready for all eventualities. Ten minutes later the operation was "laid on" and I was summoned to a hasty conference with "Daisy," "Gatty" and "Spike"—a red-faced, imperturbable Polish Sergeant Pilot who was, and I hope still is, a grand fellow to have alongside you in a scrap, if it comes to that.

We spread out the appropriate map sheet and "Daisy" outlined the plan of

campaign.
"You'll fly in echelon, crossing the Channel in the cloud cover, course so-and-so, making a landfall on Le Treport." And his nicotined forefinger stabbed at the map. "Once past the flak positions, you'll break cloud and sweep round behind here, and here, at nought feet. Beat up any troops, goods trains, gun positions or German army transport that you see and whistle up into cloud if anything shoots at you or their fighters come up. Your job is not to get into a scrap but to sow a little alarm and despondency amongst the boys on the ground. Twenty minutes after you are airborne we'll bring over a larger formation to take care of any of their chaps who may be stooging about in the murk looking for you. But I doubt if they'll put any up in ten-tenths low cloud. Fly as low as you ruddy well can down any village streets and amongst the harmless natives, so to speak, making friendly signs and so on-just to help the poor devils keep their peckers up. Then you'll discreetly veil yourselves in cloud again and come out over Le Touquet, resisting the urge to plank a couple of louis on the rouge, and beetle home. Okay?"

"Okay," said "Gatty," fondling his howitzer.

"I like zis vork!" said Sergeant "Spike," folding his map suitably and sticking

it into his boot-top.

"Fine!" said "Daisy," and looked at his watch. "It's 11.18 now. Take off about 11.30 and I'll bring the rest of the boys at 11.50 to sweep up the dust. Get cracking.

And at 11.30 to the tick "Gatty" and "Spike" were airborne, made the tradi-

tional orbit of the Station and set course for the fun and games.

They were back in fifty-eight minutes, having travelled some 250 miles, made a tour of some sixty miles through France and, incidentally, passed over some formidable

tour of some sixty miles through France and, incidentally, passed over some formidable flak positions and generally taken a couple of chances here and there.

The story which I was able to assemble from their joint reports was exciting, valuable and even amusing, but the point of it is in "Gatty's" version of the affair, leaving "Spike's" unemotional account for another time. With his eyes sparkling and his jaw stuck out aggressively, "Gatty" told me how he had screamed along a country lane, "below roof-top level" with his gun-button pressed down, pouring cannon-shell into a long line of German lorries. "That'll teach the swine to go chucking their weight about in France," he said gleefully.

Next, it appeared, he had spotted a single German soldier riding a bicycle. "I gave him a squint," said "Gatty," "and did he fall off or did he?"

Still roaring on at nearly five miles a minute, he had next come upon a line of German horse-drawn transport. He rather glossed over this fleeting interlude and hurried on to describe the welcome from the villagers of a little hamlet a few miles further on, and the "squinting" of the crew of a flak gun-position which flashed into view as they neared the coast. "For some unknown reason," said "Gatty," "the crew were all in their underpants! And did they scram! I reckon we must have got at least half of them, for old 'Spike' came after me and left his card as well!

"Gatty," his report made, got up to go, but with some reluctance, and I turned

to take "Spike's" version. A few minutes later "Gatty" was back again.
"What is it, 'Gatty'?" I asked him. "Got some more Gen?"

He hovered by the door for a moment and then shuffled over to me, reading my report as I had written it out on the signal pad. He put a finger on the paper.

"Fact is," he said, awkwardly, "I didn't squint those damned horses. I know I

ought to have—but I didn't. I had my thumb on the button and I was mad to knock off those blasted steel-helmeted soldiers, defiling that decent little lane on a summer's day. But, damned if I could do it! I suddenly thought 'Poor old horses!' and the smell of stables came into my mind, and the clank of buckets. And, you know, their noses..." His voice tailed away. Then he jerked himself back and added: "It was that chap to be well as that upset me. Seemed kind of rotten to knock him off like that, when he was pedalling quietly along in the dust."

So I altered the words "Machine-gunned enemy horse-drawn column" in my signal to "observed enemy horse-drawn column." "That do?" I asked.

And he nodded. "I suppose so!" he said. "But I feel damned awful about it now. They were Germans with those horses . . . and I let 'em go!"

I banged him on the back and said "Tough Guy, huh?" And he grinned a little

sheepishly and shuffled his feet. But he was ill at ease.

"Things like that come so unexpectedly," he said, "and at 270 m.p.h. you don't get much of a chance to argue yourself back into a bloody state of mind."

An idea occurred to me in which might lie a crumb of comfort for "Gatty." I

rang up the Flight Sergeant.

"How many rounds left in W's guns?" I asked him. And I said "Thanks" and

ssammed back the receiver.
"Well, 'Gatty,'" I said, "if you hadn't come all over goosey with the love of dumb animals you wouldn't have had any ammunition left for the Flak boys in their

pants! 'Flight' says your guns are damned near empty now!"

And the "Tough Guy" smiled happily.

"Wizard!" he said. "Now I don't feel so damned soft."

And "Spike" chipped in. "Scoose, Sir. I vas be'ind an' I squint dese 'osses.

Me, I lof 'osses, but I 'ate Germans more! After Warsaw no German don't hide be'ind no 'osses from me!"

# A SERVICE HOSPITAL THAT IS DIFFERENT

By AN Ex-PATIENT.

HAVING recently returned from a R.A.F. hospital I feel that I should like, if possible, to bring before the notice of the general public and my fellow members of the Forces some idea of the work that is going on there, a work that shows a kinder and more human side to the Services with which they are not usually credited.

I understand that it is not the only one of its kind, but however many more there may be they are in a class apart, as the flight-sergeant pilot of a Mosquito said to me during my stay: "I consider this the King and Queen of all R.A.F. stations." Well, though it is not a station, it is R.A.F., and it is different.

The idea behind this hospital, as the matron told me, is to give rest and help to those men who are suffering from overstrain, caused through various reasons, and no

effort is spared to help bring this about.

When our Station Medical Officer informed me that I was going to a R.A.F. hospital, I did not feel too good about it, not feeling ill enough to justify myself stopping in bed in a hospital ward all day. Anyhow, he assured me that I need have no worries about that and sent me on my way.

It was a longish distance from my station and it was almost tea-time when I arrived. I was agreeably surprised with its appearance. Here was no grim and depressing

Service building, but a large hotel standing in its own grounds.

Behind the receptionist's desk in the lobby was a Medical Orderly who, after noting a few facts on a form, directed me to the arrivals' ward. This room was in fact the only ward that the hospital had for all "new arrivals" spending the first night there. I was greeted by an R.A.F. Sister very informally, with the words "Come and

have some tea, and if you've any worries forget them while you're here." Tea was shared with a flight-sergeant pilot, a Canadian L.A.C. and a Scots lad, all just arrived. The only Service thing about that tea was our cups, everything else used was the

hotel ware, the whole atmosphere being decidedly four o'clock-ish.

During tea the Sister chatted to us, telling us that we should spend the night there, and then the following morning move into a room, either to ourselves or with one or two other fellows, but never more than two. After tea came the issue of the famous hospital "blues": of course, this caused a laugh—whatever they were first made for, style was not one of the considerations.

Then came our first introduction to the baths; they certainly were good. A large marble and tiled room full of baths and the most modern showers with piping hot water

-it was luxury personified.

A squadron leader Medical Officer paid a visit to the ward after supper; he conveyed the impression of having just dropped in for a chat, and had a friendly word

and joke for each patient. In all there were eleven of us arrived that night.

The next morning we were given appointments with the different doctors; there were five or six on the staff, each one a specialist in psychiatry. Each one I found had his own consulting room, there being a general waiting-room for the patients. My own interview lasted about an hour; there was no rush here—he was there to listen to me to get some idea of my particular case. I was conscious that I could speak to him not as an officer but as a doctor and, primarily, as a friend.

The next thing after this interview was to get settled in. The hotel was split into various sections as far as accommodation went. Each M.O. had his patients billeted

on various floors and corridors.

All the rooms were bright and airy and were fitted with large roomy wardrobes, comfortable armchairs and first-class beds. Many of the rooms had hot and cold water-basins fitted. My room-mate told me the routine of the hospital; breakfast was at 8 a.m., and patients then had to make their beds and tidy their rooms to await a visit from their M.O. His visit would be some time between the hours of 9 and 10; he would ask how you were, and if he wished to see you would give you an appointment for that hour.

After this visit I found that I attended either the P.T. class or went to the Occupational Centre; it was so arranged that patients attended these classes on alternate days.

At the Handicraft Centre patients were encouraged to practise their various hobbies and instruction was obtainable for those who wished it in such crafts as leather-work, basket-making, etc. Of course, the supply of materials was unfortunately short, but owing to the good staff work each patient was sure of a share in what was going.

This Centre played a large part in the work of the hospital, and although the sight of pilots, air gunners, etc., busily engaged in making baskets, etc., at first seemed strange, I noted that each newcomer quickly became absorbed in it. During my visit hand-bag making was very popular, some fine examples being turned out at a very low

cost, the patient buying what he made for the cost of the materials only.

After lunch at twelve o'clock I was free to go out as I pleased until six o'clock. The hotel or hospital has its own tennis courts and bowling green, and all patients could, if they wished, use the golf links near by. There were clubs and bags supplied free of charge, the only cost being for the balls, but as there was a plentiful supply of secondhand ones available, this was no hardship.

It was surprising the number of fellows who got really keen on golf, and I wonder how many potential golfers will owe their first introduction to the game to their war-

time visit to this hospital.

If games or walks did not appeal, there was a town near by which, although small,

boasted two cinemas which ran matinees.

After supper, at 6.30 p.m., there were plenty of other attractions such as dances, whist drives, concerts and cinema shows. In these social activities the Matron and her staff of Sisters played a large part and were always there willing to make a fourth for cards, or a partner for the dance or come forward to lend a hand with a concert.

One point I must not omit to mention is the meals. They have earned this place a deservedly high reputation; not only were they served most attractively but the cooking, which was under the supervision of a W.A.A.F. messing officer, was first-

class. Every meal was a joy and it was no uncommon sight to see men rushing back for a second helping before it all went. There was no distinction in rank; warrant officers downwards shared the same tables for messing, and there were four tables in all, each seating about twenty, each taking its turn to be first served.

I found that there was no treatment here in terms of medicine, but that all the work was based on physchological grounds. Talks between doctor and patient were invited and welcomed, and a friendly footing was what was aimed at.

It was the doctor's job to get to the root of your trouble, which may have been caused through shock, strain or even your early life. But after several visits you soon appreciated that he was there to help, and that he could not do this without your

When he had formed his decision he would do his best to rectify matters. It may be a change of job, a posting to another station or even country, and if none of these would help he would endeavour through his talks to get you to see things in a

fresh light and to reason differently.

I do not know the official cost per airman for attending this hospital, but my M.O. told me that in peace time the type of treatment in a similar place would cost about £20 a week, which is a very modest estimate, but even so far beyond the reach of most

people.

At the end of my stay I had my final interview with my M.O., who gave me a few hints on how to carry on, and then, with a friendly handshake, we parted; not as officer and man but as two friends, and it was with genuine sorrow that I left-not because I was returning to my unit but at leaving such good friends behind, conscious at the same time, as so many others must have felt before me, of a different and better outlook on life, and gratitude to the powers that be that make such places possible.

## ON BREAKFASTING

By WILLIAM H. PICK.

It is my opinion, though that indeed is of no great worth, that he who does not breakfast well is very often like as a result to be in the after happenings of the day a cantankerous man or, at least, a crochety man. And by breakfasting well, I mean of a truth breakfasting well, not on such thin and finicky fare as prunes, nuts or such like, or even on coffee and rolls as do the French, but on such solid fare as is traditional to England. And if for that opinion I face the charge of being insular I do not feel particularly abashed: nor am I disturbed if I am told that I am carniverous, which some folk seem to regard as a term of reproach, though how any man can live and not be carniverous I know not, for even water, which all drink, contains, as my microscope shows me, a teeming multitude of life that is animal and I am not sure that the air we all breathe is not similarly impregnated. But I would react with vigour if anything were said, even by implication, concerning gluttony, for I want not to touch even the fringes of any of the seven deadly sins. In any case such a charge would be the eighth deadly sin, deadlier than some of the others, an error in logic, an unwarrantable deduction not to be tolerated, for to eat solid fare in breakfasting does not mean that I of necessity stuff myself with heavy loads: it is the food requisite to breakfasting which is the point at issue. So to any such who would invite me to breakfast and who would expect my thanks, let them regale me with fare that is substantial in its staying powers, fish or fowl or meat, and not with fare which, though filling for the moment, leaves me in half an hour doubtful whether I have eaten at all. Not for me, if any other be available, be the breakfast of herbs: I can neither laugh with the world nor "cock a snook" at it on that. And, thanks be, I have not attained the state when bi-carbonate of soda must follow my eating as inevitably as night follows day.

I am heartened in my opinion by a contemplation of certain of the great men

of the past, by such as Shakespeare and "Rare Ben Jonson," as Marlowe and Spenser, who, if history is to be believed—and sometimes it is—drank beer on their uprisings and drank it with approval. And if indeed the result would be to make me write as they wrote, I, too, would drink beer for breakfast and drink it copiously: but I fear me that there is also some question of natural ability involved. Beer at breakfasting is

unfashionable, no doubt, in these later days, but the principle remains.

And to descend from the rarefied heights of Literature into the more open fields of Sport, I am further heartened by a consideration of a cricketing episode of late in the last century. Cambridge University were playing an England eleven of some pretensions. On the morning of the match the Cambridge University fast bowler—really a fast bowler and a great name in the annals of cricket, the inimitable "Sammy" Woods—breakfasted sumptuously and amply upon hot lobsters washed down with Jesus College audit ale: and later in the day proceeded to accomplish one of the feats of cricket history by taking all the ten wickets in the England eleven's innings. Hot lobsters! Prodigious! But I do not recommend breakfasting on hot lobsters and ale to all: the perfect digestion is not common.

And be it noted, in passing, that, disregarding the case of the inimitable Mr. Woods just mentioned, even those of us who are wedded to solid and ample fare for breakfasting are yet very selective in our tastes, for foods we have for the opening morning meal we do not eat at any other time of the day. Eggs and bacon, the perfect fare for breakfasting, my masters, would strike a somewhat discordant note if tendered for lunch or dinner, and the imagination just boggles at the very thought of roast beef and the pudding called Yorkshire as fare to start the day. And as for porridge at midday or in the evening, may the thought stay quiet in the limbo of forgotten things.

And if it be the English tradition that there should be solid and ample fare at breakfast, it is also the English tradition that that fare should be consumed in an atmosphere of silence and almost of gloom. We prop our newspapers against the coffee pots as barricades against our neighbours and as clear warnings to them that we do not wish to be disturbed. Occasionally, fired by something we are reading, we shoot a remark into the air, a remark usually curt and generally indicative of complete dissent, a remark whose very tone prohibits answer. Breakfast, we hold, is no time for discussion or for pleasantry, and the rare person who essays an excursion into jollity at the silent function of the meal is like to be rewarded by, at the best, a monosyllable, or, more probably, by an embarrassing silence. The young and newly joined officer of the Mercantile Marine who ventured a "Good morning" to "The Old Man" at breakfast on the first day out and was met by a glare and a "Morning—and let that last for the rest of the voyage" was but a victim of tradition and certainly could not with justice assume that "The Old Man" had not a heart of gold and was not possessed of charming manners at other times. Conviviality there may be, and usually is, at the evening meal: it has little or no place at breakfasting. Which lack of jollity at breakfasting I find hard to understand and quite often, but not always, regret. And if it be excused upon the ground of the effects of "the night before," that is but an excuse applicable to limited cases, for even the austere among us who know not "the night before" are sternly lugubrious in their breakfasting and often provide the outstanding examples of that lugubriousness. Nor can the lack of jollity be imputed to the need for masticating and digesting the ample and solid fare for I have not noticed that these who breakfast on the little and the finicky are monuments of cheer while so doing. Why breakfasting should be a time of grim silence and of irritable gloom is, for me at least, one of those things whose explaining is "past all finding out," ranking with "the way of a man with a maid" or why So and So was promoted vesterday and other equally mysterious and baffling matters which help to make up the Sum of Life.

And with the entry of the Sum of Life into the discussion, I had better beckon Discretion to my aid and withdraw, for that is one of the major mathematical problems which even those who have all algebra, all geometry and all calculus seem only too often to mess in their attempts to solve. And in any case there seems little connection between breakfasting and mathematics, save that the facetious may say something about figures as a common factor in both. But for the feebly facetious I have little time and my figure is a poor thing but mine own.

# CAVIARE TO CAPITAL

By H. W.

As we were about to leave Pahlevi a youth from the hotel produced a staggering bill for our bath of the night before. It was the price of a night's lodging, and three times that of dinner. We were emphatic in our refusal to pay.

"Fancy trying to sting us five bob for a bath in a smoking inferno," said the DP. "Sting us? What is 'sting us'?" questioned Rumi. "What does Your Excel-

lence mean? I see no scorpions here."

"My dear Rumi, in English we have a slang expression for anyone who tries to make us pay too much for something, or who borrows money. Suppose a friend asked you for five hundred tomans; we would say that he had stung you, or touched you."

''Touched?''

"Same thing as stung."

Leaving Pahlevi for Chalus, the road for the first fifty miles was fair, a country lane bordered by low hedges and a few trees, not yet properly surveyed, although attempts were being made to straighten some of the bends. Row upon row of women puddled rice in the fields, short pants reaching to their knees below a full skirt tucked out of reach of the water. In the abundant life all around, even the telegraph poles took root and sprouted merrily about the wires. Everywhere the peasants showed energy, except in the tea-houses. Men and women plodded along, load on back, vieing with donkeys, mules, ponies, camels, and even carts. Some, with an air of affluence, rode caparisoned horses. Peasants hauled tree trunks too large for the smaller donkeys, or too few for the heavier beasts.

Some way from Resht the road runs for more than a hundred miles along a marine drive bordering the Caspian, the tidal rise and fall being nil. We drove between cowslips and periwinkles in full flower, and convolvulous choking wild hedgerows vaguely guarding the rambling way. Hybiscus bushes blushed scarlet amid tea and rice washed by mountain water. A strange sight, rice within a few yards of the sea. A stork flew overhead, to stand proudly on one leg upon its nest, above the thatched dwelling of a large family. A snake wound swiftly away. Golden oriole, yellowhammer, bee-eater, roller and hoopoe flew beside the car, wings busy in the sun. A tortoise slowly crossed the road. The sight struck a chord in Rumi's memory.

"Do you know the story of the scorpion and the tortoise?" he began gravely, not waiting for a reply. "They went on a journey together and came to a stream over which the tortoise, out of a heart bounteous with good fellowship, agreed to carry the scorpion. In mid-stream, however, the scorpion tried to sting his steed with his tail. The tortoise was angry and, when safely ashore, indignantly asked the reason for such base ingratitude, saying that but for God's forethought in endowing him with armour he would have been killed. 'I'm sorry,' apologized the scorpion; 'alas, I cannot help it. I was born thus. My nature is to sting everybody I touch."

So that was why Rumi had been so quiet. We contemplated the sea in silence.

Seventy miles west of Chalus, linked by the coastal road, we came upon hot sulphur springs. Little use had hitherto been made of the medicinal properties of the waters until the Shah's five-year-plan to develop the coast embraced a large hydro and spa built on the generous scale ever associated with Iran.

"A spa?" asked Rumi; "is not that a haven where people drink their bath water?" We came to an obscure village, which he told us was Ab-i-Garm. But where was the great hotel of which we had heard so much? We drove on for a couple of miles.

Suddenly we saw a veritable palace.

To credit Iran with an eye only for size would be to label her Victorian, for her dignity and beauty have ever been in the grand manner. When her sons conceived a plan at least they achieved a landscape setting, as became a nation of poesy and romance. A Persian garden always had running water. Even Timurlane surrounded his pyramids of skulls with flower-bordered streams, which brought such fame to his capital city that her name, Samarkand, remained a melody to poets for all time. We

inted the spacious hotel drive, overlooking mile upon mile of gardens, sweeping down

to the Caspian where white horses rode in the wind. On both sides of the drive stood fountains, one with girl figures diving into the water, the other with boys. But the enchantment of distance slowly lost hold in domestic detail. Splendour of vast enterprise and beauty sank all too soon in the tragedy of drainage and dirt. The grace of fine design vanished at close quarters, offensive to eye and nose alike. The pretentious front entrance of the hotel was locked. We tried the back with more success. After washing our hands in a dirty little tin bowl, under sanitary conditions best not described, we suffered an oily and execrable luncheon badly served, and were not sorry to continue on our way. The road hugged the sea as far as Chalus, over dozens of bridges of all shapes and sizes; built to last for centuries, and intended to keep the route open despite the elements sheeting from the mountain tops. A fine avenue of trees shaded the whole way to Chalus, where stood the most comfortable of all hotels in Iran.

Upon the Shah's own land, near his hunting-box and overlooking the sea, the hotel was built with the idea of turning his palaces into paying propositions. He argued that he needed palaces here and there to which he could resort at whim. Why maintain them from the privy purse? Let government keep them up. When he wished to use them he would close them to the public. Simple! We found the Chalus hotel in charge of a European manager, who took care to see that everything was at least clean. It was the first time we had met public comfort, and that for ten shillings a night, for a

large bedroom and bathroom.

We strolled along the shore to watch people bathing. A good Bateman picture, we thought, would be "The girl who wore a bathing dress on the shores of the

Caspian.'

"We are taught to swim in the water like fishes, and to fly in the air like birds, when we do not yet know how to live upon the earth," meditated Rumi. "But come, Sir P——, let us unroll the carpet of feasting. Unseal the wine-jar of intoxication. On with the dance, I think you say."

Our mood agreed with his, but champagne cost three guineas a cork, and at that price was out of the question. Moreover, a bottle of gin sat in splendid isolation in a

glass case.

"Such as your grandfather never saw in a dream," ventured Rumi.

We saw it in a dream all right, but, alas, no nearer.

Since leaving Baghdad we had covered about a thousand miles. Damage to the cars, considering we had tried them high, was not heavy: six punctures, two split tyres, one brake rod twice broken, one fan blade sheered off because the driver put an oil-tin in the way, and one front spring. A horn twice refused to function, and one of the cars

lost the oil supply in its hydraulic brake system.

Given time, we could have motored thousands of miles from the Caspian to Cape Comorin, over a growing network of roads. We thought the way through the Chalus Gorge, over the Elburz range, surely had no equal, for more than a hundred miles at a cost of over a million sterling links the Shah's estates to his capital. Hitherto, farm produce from the coast had to skirt the mountains, either via Resht over the Manjil Pass to Kazvin, or to the east. Experts considered the direct route too expensive and difficult to build, but Riza brooked no refusal. Throughout its grand and rugged length steel telegraph posts pointed the new road. Upon the uplands, flocks grazed in rich pastures gay with wild hollyhock, blue anchusa, purple orchis, and a hundred other blooms. The only signs of habitation were stone shelters for shepherds and roadmenders, for it was one thing to build the road and another to keep it up. We came across gangs of workmen every fifty kilometres. Since the rate of pay was small, and they seldom got it, the cost to the state was negligible. The road had been revetted above and below, although when the last winter storms howled among the mountains, great boulders and coursing torrents gave engineers plenty to do.

Turning south from the coast we followed the valley of the Chalus River through forty miles of dusty, wooded hills, and entered the narrow gorge winding between rocks thirty or forty yards apart, sheer cliffs making the sides appear even closer. Every turn and bend disclosed a view finer than the last. Quite early on the road had been cut through a hill, small caves and stalactites on one side, and towering cliffs on the other, the verges of the stream shrouded by overhanging rock. We passed the Seven Pillars of Wisdom, towering heights left by blasting. Into the open again, we climbed

over a hilltop, gay with Scotch thistles and twin waterfalls of surpassing beauty. The stream bed had been built up with boulders. Irises, anemonies and yellow rock-roses

clung to the soil-less crannies.

Amid the green shade of trees and pasture, among glades dancing with rushing water, we mounted bare hills scowling above slow road and rapid stream. Mile upon mile of beauty greeted our eyes, until the road left the gorge and wound to the pass itself; buttercups and daisies, oleanders and a carpet of mauve decking the faces of the hills. Summer snow, cleft by cascade and waterfall, had sprinkled cloud-capped heights, flashing white in their distance, in places bordered by sheer precipices falling thousands of feet.

"A drop all the way to eternity," murmured Rumi.

We agreed with him, although he upset our peace of mind by his flippant comment. We were only too aware that to sideslip would mean a long journey before we came to rest. We drove into a cloud; every minute expecting a recklessly driven car to hurtle round a bend and push us over the edge of the wet road. We heard later that a tunnel would soon save seventeen kilometres of this climb and ensure the road open all the year round.

Twisting and turning, we reached the snowline—and this in the midst of summer—an endless panorama of superb scenery, near and distant, high and low. The descent the other side of the pass was shorter, since Teheran was four thousand feet up. During the whole of our journey of a hundred-odd miles we saw no policemen—extraordinary for Iran. We came upon two lots of four horses abreast, drawing carts, a satisfying sight in mechanical days. We joined the main road at Karaj. Occasional villages

nestled beside the streams and clung to steep terraces.

The Elburz mountains, cornerstone of the Roof of the World, separated Hyrcania from ancient Media. Snow-crowned Demavend, regally symbolic of the white-haired Shah himself, stood sentinel over his capital city. There was once a town called Demavend, where ruled a Persian tyrant. Two serpents, growing from his shoulders, demanded to be fed every day with human brains. At last a youth volunteered to kill him. This accomplished, he lit a beacon at the summit of Demavend's nineteen thousand feet, to tell the world. After sunset we saw the snow gleam a soft pink bloom, afterglow, they say, of that ancient bonfire.

"Behold the City of the Shadow of God," said Rumi, pointing to Teheran. "The Footstool of the King of Kings. Sir P— must set foot in the stirrup of impatience, and goad himself with the spur of novelty. The sand of the desert is lightly blown away by a breath. How much more likely is the fortune of man swayed by him who requires the head to bow in tribute? He who speeds to audience with the Mount of Splendour is honoured. His face shall be whitened and his consequence increased.

Long may he bask in the sunshine of the Stupendous Presence."

The idea of the DP's face blanching tickled us. A smartly turned-out policeman stopped the car. Nonchalantly we waved the crested envelope. He read the letter, the right way up, took a note of its number and of our names, and allowed us to proceed

in peace.

We were on the right road to Gulaheq, the summer resort a thousand feet or so above Teheran, when we were diverted by a stupid peasant boy. He gaily sent us out of our way across a rough track, bumping and bouncing enough to make us all but burst with fury. Several times we found the Iranians maddening in the way they directed us quite glibly, without in the least knowing where we wanted to go.

We finally arrived.

Say it with flowers in Iran as elsewhere. The first thing we noticed when we entered the drawing-room was a wide deep bowl, in which grew over a hundred madonna lilies and clusters of white, pink and crimson carnations. An Iranian diplomat's eye for beauty conceived this superb token of admiration, that it might remain for months to cherish his charming thought. Like the age-old petitions to Persian royalty, those flowers seemed to say: "May I be your sacrifice?"

We strolled in the orchard among cherry trees bowed to the ground with fruit, while our host told us of an American girl who visited them the week before. Unwilling to shock the old Iranian family retainers, she decided to put away her own silken pyjamas each morning. One day she forgot. Dashing up to her room, she met the



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AIRMEN PARTAKING OF A QUICK LUNCH SOMEWHERE IN NORTH AFRICA.

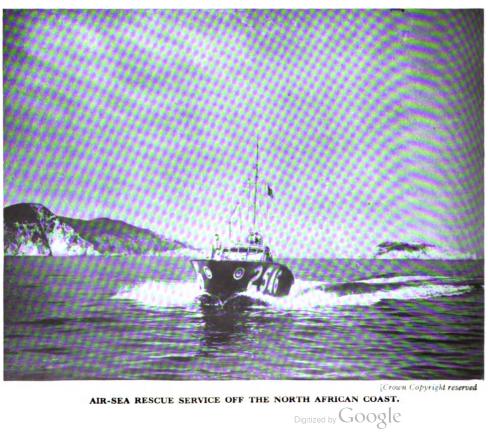


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house-boy. "It's all right, khahum," he said, "I have taken the pyjamas back to the

young gentleman's room for you!

Lightning and thunder about Giant Demayend shattered the lowering skies. We looked at the storm raging round the mountains over which we had just passed. The cloud above us burst. We hurried in from tennis.

"That storm," said our host the next day, "swept away several bridges which cannot be repaired for months. Had you been caught, you would have found yourselves

in no end of a mess."

We enquired about Rey.

"Nothing now remains of what was once the capital of a great empire," said Rumi. "Rey, the Rhages of Tobit, where Alexander rested for five days after pursuing Darius, is said to be the birthplace of Haroun-ar-Rashid, and a favourite resort of his. It was ever a low-lying and unhealthy town. A poet of Qum once met the Angel of Death, a guileful, yet white-faced Excellence

"' Where art thou going?' demanded he.

"' Flying with speed,' said the Angel, 'from the unwholesome morning dews of

the city of Rev.

"Destiny, Kismet, what you will, there is another tale like that," continued Rumi, "if you will allow the fancy of imagination to play upon the couch of anticipation." We nodded.

"Our country has often been overwhelmed by the rule of passionate Shahs," he "One of them from among the beauties of Persia built Teheran for himself

and for those he had gotten into the world.

" It happened that two men in the new city were one day dragging the Anchor of Reflection along the floor of the Sea of Friendship when they met the Angel of Death. At sight of him, one of the two men screamed in horror and fled, saying that he must depart from Teheran for Rey at once, or he would surely die. The other invited the Angel to drink of the Sherbet of Contemplation at a nearby café.

"'I am sorry,' said the Angel in a hollow voice, 'but I have a professional

appointment at Rey.

"In the ninth century the city was at the height of culture. Fifteen thousand caravanserais were then too few to house the rich visitors. Early in the nineteenth century the walls had six towers and six gates, fortified with cannon and inlaid with

pictured tiles. They too have gone, except at the Abdul Azim Gate.

"Without Demayend and the ruins of Rey, Teheran would lose much of her picturesque interest. She leapt into prominence under Agha Muhammad Shah, who made the city his capital because it was the pivot of the plains where dwelt his own tribes. If he lived further afield, he argued, control would be so distant that local governors might be tempted to corrupt those over whom they held sway. He built ramparts round the main square, and a drawbridge spanning the moat. Above the Royal Palace, named The Ark, stood a tower from which he and his cronies delighted in the miseries of those of his dangling subjects who had incurred to the full his displeasure.'

During the war of 1914-18 a pilot, flying a D.H.9A, landed his general in the middle

of this same square, to the consternation of everybody, including the general.

Rumi took us to the flat-roofed Palace of the Sun, built of mud bricks.

"In olden days," he said, "This palace tickled the imagination, whensoever the

Shah shed the light of his countenance upon the dust of the earth."

Our next insight into the culture of old Persia was the Gulestan Palace in the Garden of Roses. Goldfish swam in a pool beneath a sparkling fountain. Beyond the marble hall and a chamber of mirrors, a staircase led to the throne-room, hung with gay chandeliers each of a different colour. Around the walls stood cabinets filled with priceless treasures: jewelled swords and scabbards, aigrettes, Chinese lacquer work, vases, gold and silver plate, cut glass, jade, chain armour, and a thousand more. Old carpets, each finer than the last, patterned the floor. The famous Peacock Throne of the King of Kings, studded with emeralds and rubies, was flanked by two others. Said to have cost more than ninety thousand pounds, the original throne stood on four pillars, each surmounted by a golden peacock encrusted with jewels. There the Imperial Clay was wont to be seated in all magnificence, surrounded by his courtiers. When

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Nadir Shah conquered Delhi he appropriated the jewels of the Great Moghuls, brought them to Persia and wove them into a tent, a canopy and a throne.

A second room was decorated with crystal, Russian glass, English chandeliers and

fine wall mirrors painted with birds and flowers.

We descended to yet another throne, in massive marble, whereon the common people might gaze from a distance upon their gracious ruler. In the centre of the

throne a fountain played about the feet of Divine Right.

"At one time," said Rumi, "flowering bushes exuded sweet scent that had never looked upon dust, watered by a spring that had never been vexed by a cold blast, when life was love and the nightingale warbled her enchanting note and rent the thin veil of the rosebud and the rose, so that they intoxicated the senses and made the heart

The tower of Toghnil nearby, built of round fluted white columns simple to a degree, once crowned with a blue-tiled dome, commemorated the last of the Seljuk

Modern Teheran was making rapid progress. Fine buildings, wide roads and wellordered avenues of a youthful splendour were not unlike London before Mr. Hore-

Belisha turned her streets into orange groves.

Cabarets vied one with the other to provide bright entertainment. At first, two artistes delighted an enthusiastic audience. When tastes became jaded, six pirouetted before the bored gaze of the clientéle. Then twelve fairies from Central Europe arrived to grace the floor of yet a third restaurant, which thus gained temporary monopoly. One Shah, after a visit to England, sought to buy the entire Gaiety chorus. Defeated in his lavish project, he ordained that the women of Persia must wear ballet dresses in imitation. We saw some of these, degenerated to a narrow frill around the waist instead of the original regulation three hands' breadth. Beneath, long black drawers descended to the ankle.

The Frenchman of the East was living up to his name. All night long, when we were there, the cabarets, adorned by those who could afford to pay the stiff prices, illuminated the gardens of Stamboul Street and Balizar Street, beneath palm and apricot trees. The prime entertainment was caviare from the Caspian at three bob a nob, with a whisky and soda at the same price. A dance tune pulsated as a couple took the floor, under lights kindly shining. Iranians and Europeans both contributed their mite to the evening's fun, among as cosmopolitan a crowd as was possible to gather. One of the ex-royal family ran the most fashionable cabaret. Hungarian artistes seemed to provide the best part of the shows, with a few Poles and a Frenchman or two. They may not have been exactly the John Tiller girls but theirs was a life of action and adventure, amid more difficulty than we cared to contemplate. On through the night went the fun, in French and English, humour slightly strained by the dapper little compère who filled a wierd bill. The joke of the moment was that some Moslems thought Russians half-way towards becoming Moslems because their creed said, "There is no God." To become a Moslem they had but to add, "except Allah."

One evening when we were there we saw a young reveller who had foolishly drunk too much araq. Feeling exceedingly volcanic, he excused himself and wandered outside. The cold air made him worse. The trouble was, he thought he was inside, saw a window, rushed to it with all speed, thrust his head through, and was violently sick

on to the dance floor he had just left!

On the score of economy the town lights dimmed at four in the morning. Those who catered for Teheran's night life were not so easily defeated. Petrol lamps flared over the last stages of the evening's amusement, until the droshkhas took home the bits and pieces. Not until daybreak did the cabarets end.

"Gaiety as old as time and as young as the passing moment," was Rumi's dry "We have a saying that perfect music is made by a tar, a drum, a human

voice, and a dancer, the Mistress of Night."

The next morning he came to take us shopping, carrying a satchel which he said

was his kief.
"This," he said, "you English call a despatch bag. In Iran, we carry it in public places to add a measure of importance to our humility. The beloved kief lends an air of dignity, of respectability, although it may be as empty as the mind of a woman.'

We entered a shop to buy some films, and saw in the window a card on which was pencilled "Optimist and Spectacular Maker." Outside, we ran into a soldier wearing a medal. We asked how he had earned this.

"For bravery, sir," came the reply; like the old guide at Stirling Castle, who

announced that he was one of the 1914 heroes.

We saw Teheran as a hive of industry, representatives from many countries vieing one with the other to secure contracts for anything from a lighthouse to a cotton mill. A steel bridge? Did His Majesty want a packing factory? Textile machinery? An electric-light plant? This little matter of the railway: you want engines or rails? A contract for part of the line? Perhaps a ginning factory? And so on. The servilities of the commercial community afforded much local amusement. The Swedes were winning the race in our time, but the British and the Germans, the French, the Italians and the Russians were not easily outdone. Over ten thousand Russians lived in Teheran alone, where their language was widely spoken. They owned many of the shops and cafés, exerting considerable influence upon the city. We met what was left of one of these Russian merchants, who had just suffered an irreparable loss on his way to the bank.

"All my money has gone," he shrieked. "The filthy thief has ruined me. Truly has it been said, 'If your friend has been to Mecca, trust him not. If he has been there twice, avoid him. If he has made the pilgrimage three times, flee from him as from Satan himself.' My companion called himself Haji, for he had five times visited Mecca,

and yet I trusted him. Ayee! what shall I do?

Cursing long and loud, he repeated the story to those who had gathered round. On his way to the bank with the equivalent of about two thousand pounds, he had trouble with his car. Taking off his coat, the money in a pocket, he proceeded to make repairs. Those who lived by their wits saw to the rest. Rumi had no sympathy.

"May his mother be childless of him," he said. "He has drunk deep of the cup of vanity. When its contents passed the lip of expectation, his heart overflowed with arrogance, and his bowels with ambition. Fate now but empties what she filled."

The oriental outlook on matters of business was naïve to say the least of it. An insurance broker told us that one day a Jew in all seriousness came into the office to insure his premises against fire. The broker asked him from what date he wished to

"From yesterday," said the man. "That was when I had the fire."

In contrast, a hat manufacturer from Teheran visited a factory in England during the luncheon hour. When the return hooter sounded he saw the employees running to work.

"Tell me," he said, "where can I get a hooter which will make my men do that?" Recently an eminent author interviewed some Iranian journalists. He talked to them long and earnestly, flattered by their responsive attitude. At the end he invited questions. To his surprise, nobody had anything to say. There was a good reason. Nobody understood the language he spoke!

# INDIAN NOTEBOOK

XX.

It was inevitable that sooner or later in these notes I should write about cricket in India, and that moment has now arrived. Cricket is a game to which I have been passionately devoted from the earliest days I can remember: in the company of other cricket lovers I can talk about it for hours. To me, quite sincerely, cricket is much more than a game, in the ordinary sense of an agreeable pastime or form of exercise, which is the way in which, for example, I regard golf. Cricket ranks, in my judgment, with the noblest and loveliest expressions of the English genius, and when I was in India I used to think, on Saturday afternoons, of the hundreds of greenswards in English villages and towns on which wickets would soon be pitched and from some of which (in their lovely rural settings) sturdy lads and men of my own race, with bucket and

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shovel, were already removing the occasional cow-pat from the immediate vicinity of the pitch, because last week the Vicar had wrecked a new pair of flannels and had expressed himself on the subject in very decided terms. I used to think of these faraway scenes with tears in my eyes and the intense nostalgic longing of the outcast in an alien land. For though cricket is a grand game anywhere, and certainly it is a grand game in India, nowhere else, I suspect, is it quite the same as cricket in England. Some indefinable quality, something perhaps which it derives only from its native air and homeland setting, is not there. Still, the next best thing to cricket in England is cricket in the place you happen to be, and although it is wholly a matter of personal choice I would rather be asked to make one in a pick-up cricket match in Spitzbergen than play international polo in Paradise.

This preamble is by way of warning: first, that when I write about cricket there is always the chance that my pen will run away with me into regions of (a) high enthusiasm, (b) profound technicalities, and should this be about to occur I offer my apologies in advance; second, there may be here and there among my readers one or two of those persons who find cricket a bore. For them, if such there be, I am sorry, for I would not willingly inflict pain or the visitation of tedium upon the meanest of

God's creatures; but I am offering no apologies in that quarter.

Cricket is played throughout India, at least throughout Northern India, with immense zest, by Indians no less than by the European community. The Indian has a natural keenness and a notable aptitude for the game and it seemed to me that the differences and distinctions which to a greater or less degree distinguish the Indian from the British are less evident on the cricket field than in any other sphere of activity. Indians have not only mastered the technicalities of the game; they have also absorbed its atmosphere and succumbed to the subtle influences which it exercises on character and habit. Everyone who has played a lot of cricket at home becomes familiar with the types of player the game produces. It was of great interest to me to recognize precisely the same types, with the same eccentricities, oddities, excellencies and failings. on a cricket-ground in India as one might meet in a pavilion in Lancashire or Sussex. Nothing so much convinced me of the common basic qualities of our human nature, both in its virtues and faults, as my experience in playing cricket in India. I believe it is true that my general attitude of mind to what is called the "Indian problem" has been coloured by this experience, because it has made me so strongly conscious of the qualities we share in common rather than of the differences of race and tradition which quite naturally tend to separate the British and the Indian.

I should like now to say, not in any patronizing way, but as a simple statement of fact, that I enjoyed playing cricket with Indians in India and I hope they enjoyed playing with me. Whatever may be the "future of India" I sincerely hope that cricket will continue to flourish there and will be spread among a larger section of the population. It is an excellent form of social and political education—though heaven forbid that anyone should go in to bat with that factor in mind, or indeed with any motive ulterior to that of making a perfectly good hundred and, if possible, smashing

#### XXI.

You will see what I mean about my pen running away with me. Never mind. I am not so innocent as to believe that the centuries-old problems of India can be solved

the pavilion clock in the process.

by off-drives and googlies, but they can help. They point the way.

A good deal of cricket in India is played on matting, but in the north, for example at Lahore and Rawalpindi, there are good grass wickets. The method of preparation is to water the pitch thoroughly and then, when it is drying, to roll it into a hard. smooth, shining billiard-table surface, resembling, I suppose, the type of wicket found in Australia. These wickets are true and fast and put a premium on fast and medium-fast bowling. There is not much encouragement for slow spin bowling, and generally speaking Indian cricket is weak in this department. A rainstorm may produce, for a few hours, a "sticky dog" which is a spin-bowler's dream of heaven, but this is a very rare event. In general, the lack of variety in the wickets and in the weather imits the development of the Indian cricketer's technique, and it also makes a season's

cricket in India rather less interesting than one in England. There is, of course, the compensation of an almost certain blue sky and warm sun. This earth provides no more dismal and dispiriting sight than a deserted, rain-swept cricket-ground, with blurred, dripping sight-screens and pools of water gathering on the pitch, a melancholy band of bored, blazered figures kicking their heels in the pavilion and occasionally peering out with little hope at a grey unbroken sky. How many hours and days of my life have I not wasted in these miserable surroundings, waiting in vain for the sun that never shone! Drip, drip, drip! Only a game with a divine spark in it could have survived the discouragements of a really wet English summer, and only a somewhat peculiar race of people, as the English undeniably are, could have continued in love with it under such conditions. But in India this handicap to the game's enjoyment at least is absent. A rainy day is so much of a rarity that when one occurs it is quite a pleasurable event.

I played most of my Indian cricket with the Lahore Gymkhana on their admirable ground in Lawrence Gardens, girt with tall trees in which the crook-winged vultures built their nests. From October till about the beginning of April we played nearly every week-end against sides from Lahore or neighbouring towns and stations, such as Amritzar and Ferozepore, beginning our matches at two o'clock Saturday afternoon and continuing throughout Sunday. In the hot weather, except for the short close season of the monsoon, matches were played under rather restricted conditions, in the evenings only, but I was away for most of this period. As a weight-reducing exercise hot-weather cricket has few equals, and the fact that it is played so keenly is evidence of India's boundless enthusiasm for the game. When the sun drops below the tops of the trees there is a fall in the temperature. One puts on a sweater and sits drinking long whiskies-and-sodas in the brief twilight, till the fruit-bats, as large as rooks, begin to flap silently through the dusk, and it is time to get back for a bath, dinner in the club, and perhaps a visit to the "flicks." Cricket in India may lack some of the sweet serenity of its English counterpart, but it has delights and charms of its own. Among these I give a high place to those long ice-clinking whiskies-and-sodas sipped luxuriously in the half-light of evening.

Indians, as I have said, have a natural aptitude for cricket. Their lithe agility and quickness of eye endows their batsmanship with peculiar brilliance. The stroke-play of many of them is of the highest order, and it is perhaps only a certain impulsiveness and volatility of temperament which has prevented many more Indian players from achieving, in representative cricket, the fame of the incomparable Ranji and his almost equally brilliant nephew, Dulep Singh. In the field they are quick as panthers, but they have so far produced few bowlers above the good club-cricket class. This, as I have suggested, is probably due to the prevailing type of Indian cricket, which is unresponsive

to the subtler niceties of the art.

But it was not so much their skill or even their sportsmanship which attracted me to the Indian cricketers I met. It was their genuine love of the game. I remember on the boat going out I sat at table opposite an elderly Indian gentleman, and for the first few days we exchanged only some desultory polite conversation. Then one evening he asked me what was my favourite game. When I said that I was and had always been a persistent addict of cricket his brown, wrinkled countenance instantly glowed with warmth and pleasure. "Ah! cricket!" he exclaimed, and leaned confidently forward with the eager delight of one who knows he has found, in a company of strangers, a friend and brother. There was a bond between us. I recall, too, another enthusiast, the learned Dr. R-, a noted zoologist of Lahore University. He told me once, with mock concern, that although he had achieved considerable distinction in his profession, and was the author of several books of international repute, when he visited other parts of India and was introduced to distinguished people they invariably greeted him as a noted cricketer and had never heard of his books. While he pretended to deplore this neglect of his scholarship it clearly gave him immense satisfaction. be an eminent zoologist might be a good enough way of earning a fair living, but to merit fame as a cricketer was to have lived worthily and to a noble purpose. He would have agreed with Sir James Barrie's profound assessment of values: "It is better to be happily married than to make fifty runs. It is better to be happily married than to make ninety-nine runs. Beyond that I am not prepared to go."

#### XXII.

I mentioned in the very first paragraph of this series of notes that while in India I umpired in a test match. This seems to be the right place to describe that terrific

experience.

The occasion was a match between an Australian touring side and an All-India XI played at Lahore. It did not rank as an "official" test match, because it was not an official tour, but a private one sponsored by that keen sportsman the late Maharajah of Patiala. This, however, in no way detracted from the importance of the event in the eyes of cricketing India. The atmosphere was no less tense, no less electrically charged with excitement than would be the case at Sidney or the Oval in the rubber match in an England-Australia series. To the massed throng of spectators—and it was pleasant to find it so—the honour and glory of India were at stake.

The touring side did not perhaps represent the full strength of Australian cricket, but it was a strong combination, skippered by J. Ryder and including several famous veterans, among whom was the incomparable Charles Macartney, whose hundred scored after tea at Leicester in the opening match of the great 1921 tour was the most brilliant and dazzling innings I have ever seen. The rest of the team was made up of promising youngsters, many of whom, but for the egregious and deplorable Hitler (who ought to have been promptly "no-balled" at birth) would no doubt by now have attained wider fame. They had already won two of the five matches arranged against All-India,

so in this match the rubber was at stake.

It was desired to have one Indian and one European umpire. The admirable Doctor whom I mentioned in the last note undertook to stand at one end and in a weak moment I agreed to complete the set. It was a four-days' match, and when it came to an end in the afternoon of the fourth day I was more tired than if I had spent the time in a continuous attempt to scale Mount Everest on roller skates. I suppose professional first-class umpires get hardened to the job, but I found the task of concentrating on every ball bowled, hour after hour in the bright glare of the North Indian sunlight, called for a tremendous effort. One was always conscious that in the growing tension of excitement a single bad blunder might have led to an international incident.

Afterwards I began to write an account of the experience, and although I did not finish it I think I might quote the fragment as it appears in an old notebook which I

came across only a few days ago: -

"I have been umpiring in a test match between India and an unofficial Australian team of cricketers. For four days I stood there wondering whether five or six balls had been bowled and what I should say when the next l.b.w. appeal was howled at me.

Assisted by luck I came through the ordeal I think uncommonly well.

"Should an umpire tell? Ought he to disclose to the world the thoughts which pass through his mind as he stands there apparently so detached and inscrutably omniscient? Should he confess to the influences which, unless he is constantly on guard, insinuate themselves and undermine what ought to be the cold mathematical precision of his judgment? Having within a short space said 'Not out' to three appeals for 1.b.w. and one catch at the wicket, each more agonized, more challenging than the last, can he acknowledge the existence of that little tempting voice which whispers: Next time I must really give him out if I possibly can; it's only fair.

"Assuredly he must reveal none of these thoughts. He must keep his own secrets, never admitting that the faintest shadow of the smallest doubt has ever troubled his mind. An umpire may make mistakes, but he must never look other than infallible.

"The scene is an interesting one. Round the field of play, close-mown and rather brown from the failure this year of the usual Christmas rains, some ten thousand excited spectators are grouped. To the right of the pavilion long canvas awnings shade the reserved seats, and beyond are the special enclosures for schoolboys and other parties. To the left are gaily flagged tents of the notabilities—of the Governor and his staff and the entourage of His Highness the Maharajah. Across the opening of one of these tents a screen of fine lace netting has been drawn, and behind it sit the lovely and mysterious ladies of the purdah, on whose veiled beauty it is unseemly that the public gaze should rest. Behind the lace netting—for I own 1 shot a surreptitious glance as I

passed (umpires are the sole judges of fair play)—sit or move graceful female figures in elegant saris, fascinating shadowy shapes. A strange conjunction this of East and West, somewhat inappropriate to the game of our old bluff and hearty W.G.

He would not, I think, have approved it.

"Round the rest of the ground, to the verge of the boundary line, sit, squat, kneel and stand thousands of Indians in a picturesque variety of costume. They are packed like sardines, and hundreds in the back rows, one imagines, can see little or nothing of the playing-field. But they are good-humoured and jolly, bandying chaff with the red-turbaned police like a Lancashire crowd at a cup-tie. They have paid twelve annas each to come in and that is, for most of them, no inconsiderable sum.

"The sky is a delicate porcelain blue and patterned against it spread the plumes and green tracery of surrounding trees. Here and there, high in the branches, one sees the crimson pugarees of a gymkhana tennis ball-boy, who has climbed like a monkey

to get a free view of the game. The air is becoming electric with expectation.

"As we are about to start it is observed that at one corner the crowd has encroached upon a considerable area of the playing-field. The police are helpless. They wave their sticks and shout shrill commands which no one obeys. At length Ryder, the Australian skipper, and myself go over and make friendly encouraging gestures. The crowd responds as best it can. Spectators compress themselves like worms in a tin and most of the field is clear.

"India is batting. An audible gasp of apprehension rises at each ball from the Australian fast bowler, followed by a quick "Ah!" of relief or wild burst of cheering

if a run is scored. The game proceeds.

"The Indian captain is batting now and has hit two cracking fours. A spectator, unable to contain his jubilation, comes dashing across the field pulling a handful of rupees from his pocket. He is intercepted and with difficulty persuaded that in test matches it is not customary to bestow backsheesk upon the players in the middle of the pitch. He retires to the ringside, disappointed but loudly cheered by the crowd, who fully approve his intention.

"Every hit, every piece of fielding is cheered wildly. Wickets begin to fall and a

note of sadness creeps in. But they still cheer.

"The captain is still there, a small gallant figure saving his side from disaster. Heart and soul the crowd is with him. It loves him. For the moment he is India, the great, immortal Motherland.

"Cricket, one feels, is indeed an heroic game, uplifting the spirit of man as at the

sound of a trumpet.

"At the lunch interval the spectators surge across the pitch, brushing aside and swamping the police and groundsmen who attempt to cordon off the wicket. They surround the pavilion. They invade it. If they find themselves near a player they reverently touch him, as one might touch a sailor's collar for luck. It is impossible to move. Only with difficulty are the spectators prevented from entering the players' dressing-rooms.

"Alas, when the bell sounds and they drift back to their seats the field is littered with orange and banana peel, paper bags and strands of chewed sugar-cane. Not so

good.''

At this point my contemporary record ends abruptly. I suppose I decided it was time to drift across to the bar, and never got down to it again. A pity, as I was just

beginning to warm up. I like that bit about the trumpet.

I remember that Ryder was greatly upset at the state of the field after the luncheon interval. It offended his sense of decorum and the high seriousness of the occasion. We stood together surveying the stricken field and he flung out a protesting arm with a look of profound pain. "Look!" he said. "A test match! Imagine a thing like this happening at Lord's or Trent Bridge!"

Sir Pelham Warner will know exactly how he felt.

#### XXIII.

I shall not now recount the rest of this famous match, for I cannot after this lapse of time recapture the spirited prose of my notes written at the time. In the end the

Aussies failed to make the runs in the fourth innings. The excitement of the crowd became indescribable at this stage and as bad luck would have it I had three or four ticklish decisions to give. They all came at my end—the Doctor at the other—I can see him now with his solar topee and rather fine moustache—had nothing to do all the afternoon but call "Over" and signal an occasional boundary. I even had to give Macartney out l.b.w., which seemed like sacrilege. When the last wicket fell the players scrambled for the stumps as souvenirs and we all hared for the sanctuary of the pavilion, but the spectators cut us off. They cheered, they shouted, they wept for joy. India had triumphed. Her champions had met and overcome the great Australians. It was an unforgettable scene, and rather a moving one.

There is one thing which Indian cricket needs: unity among those responsible for the control of the game. This, one must confess, it has so far not achieved, and the keen enthusiasm of the players and their very great ability are, as a consequence, deprived

of some of the rewards they merit.

C. L. M.

(To be continued.)

### SIMMO THE ERK

A PLAIN TALE OF 1927.

By Squadron Leader D. R. Parkinson.

SIMMO was an L.A.C., a Chippy Rigger by trade, nearly forty years old, of medium height, well-built, with a soldierly bearing and a tendency to drink. He was a good rigger, a tacitum companion, and no churchman. From his starboard cheekbone a thin white scar crossed his cheek, but we never knew how he came by it.

He never wrote letters and no one wrote to him. He had no close friends, though he was always civil to his comrades and obedient to his superiors. His rare leave he spent destiltorily at the Union Jack Club. He appeared to have no parents living, no wife or children, and he never spoke of any brothers or sisters. We sometimes wondered who was entered as his next-of-kin. In spite of this complete isolation from normal human ties he was a happy and contented man.

When the weather was down on the floor, the hangar doors shut, the daily inspection completed, Simmo would march briskly up and down, whistling. Each time he turned about at the end of his beat he would tap the floor with one foot in a tiny

gesture of self-assertiveness.

When the weather was fine and the air full of trainers doing circuits and bumps, Simmo went happily about his duties on the tarmac. His kite was rarely unserviceable and he was never missing when it taxied in. He took his turn trundling Bowsers up to the petrol dump and he managed the Flight tea-swindle admirably. No one ever tried to "win" the mug in which he drank his own dark brown stew because it had an inch of string binding, well doped, round it to stop it leaking.

Thus Simmo, an efficient, conscientious airman, going about his lawful occasions,

getting in nobody's way and never in trouble with the authorities.

It was during the time we knew him that airmen of good character were first allowed to leave camp in plain clothes. The hut became full of suitcases containing civilian clothing of every kind, and we went out on the town in well-pressed trousers and polished shoes. Now Simmo scorned suitcases, preferring to keep his possessions in two kitbags. He would take down his second kitbag, and from it a bundle, crushed into a ball, which resolved itself into the components of an incredibly old grey suit. Trousers, waistcoat, jacket, a rag of a tie and a trilby hat had apparently been immured for years in that bag. No attempt was ever made to fold or to press them and we used to watch fascinated as he attired himself. Whistling his customary light-hearted lay, he would cock the broken-brimmed trilby on the side of his head and depart toward the Guardroom looking exactly like the Michelin man.

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Fourteen days on, fourteen days off, summarized the rhythm of Simmo's leisure hours, and he allowed nothing to upset it. For two whole weeks he would go to bed immediately after tea, on the old principle of "in bed or out of barracks." During this period of self-denial he smoked five Woodbines per day and shunned the N.A.A.F.I. Having thus saved nearly all his pay, he would spend every evening of the next fortnight down in the village playing darts against the locals. He must have drunk fifteen pints by the time he set course up the long hill to the camp, but he always reached the hut exactly ten minutes before "Lights Out." When in this condition his speech was impeccable, a

strange contrast to the slip-shod vernacular of his sober working hours.

He was soon in bed, and immediately after "Lights Out" we would hear a ventriloquist act which never varied by a syllable. It was startlingly good in the dark and newcomers to the hut were never warned that it would take place. When it began they were shaken to the soul-bolts by the piping voice of a boy of ten, which said:—
"Good-night, Dad."

To which Simmo replied in his gruff bass:—

"Good night, my boy."

Then there was pause, after which:—
"I'm not tired."

"You go to sleep."

"I don't want to go to sleep; I want to go to the pictures to see Charlie Chaplin."

"Go to sleep, you little bastard."

"You're m' father!"

To the echo of that accusing, triumphant sally we would go to sleep, and in the morning Simmo the Cultured Ventriloquist had given way to Simmo the Erk.

# IN A CANTEEN

By W. Thomas Cunningham.

In a canteen She broke lettuce With cool fingers. Tall she was and fair, Tall, slender like a tree. She sliced cucumber for cool sandwiches, And reminded me of someone.

A piano ripples Through the crowded air, And red-faced clamour grows And laughter stirs. An open door and Through the coffee steam A bar of light, Of Sunday-morning sunshine Lights her hair As to her work she leans Graceful as the laburnum bough. There is a blue mist About her eyes and a longing In my heart.

<sup>&</sup>quot;'S'hot," she said. "That'll be sixpence."

### "THESE—OUR CHILDREN"\*

VERSES OF THE ROYAL AIR FORCE, BY ANTHONY RICHARDSON.

(The following verses, "The Toast" and "Adjutant's Office," appearing in the above book are reprinted by kind permission of the publishers, George G. Harrap & Co., Ltd.)

## THE TOAST

Young Gentlemen!
The privilege is mine!
A Toast for you, Gentlemen, and in a wine
Of vintage prime enough from grapes of a vine
Crushed from Experience, stored coolly in a vault.
If men like not its flavour, then the fault
Lies in a bitterness, that on a Tongue
Tastes acid of itself, not being young!
Gentlemen! Upon your feet!
The hour is meet
For England!

My boyhood knew your fathers. At Passchendaele, The Salient, Thiepval, Loos, Givenchy, Mons, Le Cateau, Cambrai, Suvla, they did not fail To write their nocturne. We left it to their sons To orchestrate a symphony for guns!

"In Flanders' fields . . . " "We will remember them!"
Sirs, your indulgence! Is it too much to ask
You should read further the present poet's task,
Since blasphemy has swelled our long anthem?
And all our trumpets' blaring but raised a laugh
We did not hear, before a cenotaph?

A Land for heroes fit . . . It took a hero's heart to live in it!

The Torch was ours to pass. We held it high For a day and a night! We let its banners blow Vermilion, till we watched its crimson die; • There were no embers left to start a glow; We spread our fingers and saw its ashes go! We went our ways and made our little lives; We looked a week ahead and thought it well; We listened to the tales old soldiers tell And took the story home and told our wives. It never seemed to us we could be bores, Recounting myths of wars to end all wars.

Our border's on the Rhine.
We took no action, but it sounded fine!
Now with our years gone past we know our crime,
We who have seen you go and not return,
Who've seen the flame extinguished ere it burn,
And seen you ride those lists the second time.

\* See Book Notices, page 204.

Nay! But we were not faint-hearts! The door was locked, The windows shuttered fast, the gateway barred, There was no answer when the captain knocked, Sore were our limbs, the flinty way was hard. Behind their battlements, beyond their moats, The old men sat. We could not reach their throats!

Alas! my lips are sealed!

Not so those gasping on the smoking field!

Thus it was! What brings this aftermath?

The pompous preachings of some senile fool?

God's strong avenger, you. Or still man's tool?

The mountain track or primrose promised path?

Yours is the honour, Gentlemen! Yours the blood! Yours is the armour and the morning light! Send out the Dove ere Ararat shall flood! Lift up your spears, your steel's still burnished bright! Sweep clean the Temple, thrust their outworn lies Down their damned gullets with their merchandise!

England this Day expects . . . Let the World crumble, if one of us forgets!

Gentlemen!

A Toast! Upraise each hand!

England, that shall be ours, this English land!

England, whose seas we held, whose shores we manned!

Skies of England! Cliff and fell and coast!

Youth of England, Gentlemen, your Toast!

Gentlemen, upon your feet.

The time is meet

For England!

# ADJUTANT'S OFFICE

[Much of an Adjutant's work can be done by use of the telephone.—MEMO.]

I'm certain by Musbury Bridge the trout are rising, And there'll be daffodils deep by the water's edge, The last cohorts of yellow wild heads blooming In the green marshes and crowding to the hedge. And over the distant elms, where Musbury Castle Stretches its flanks, sky footmarks climb the side Where the steel plough has traced its red rich furrows, And overhead the clouds are breaking wide. I'm sure the sun has set the brown trout moving, There's that old scamp last season left alive, He'd take a dun . . .

Hullo . . . Hullo . . . Hullo . . . yes! This is the Adjutant of One-owe-five! You want an Orderly stooge? Well! There's one detailed In D.R.O.'s . . . What's that? He's gone on leave? 'Well, why, old boy, pick on the blasted squadron—Don't S.H.Q. keep officers that breathe? A'W.O. . . . Okay, if you can't get one . . . All right!

Down there—the early mackerel might be shoaling "And working westward through Lyme Regis Bay. Do you remember the night we dropped our killick By Bo'sun's Ash, and the great shoals swept in, Rustling beneath our keel like leaves of silver, Rippling the satin sea with fire and fin? And late the night lit hand-lines flashing phosphorus, Clean sparks of water-flame . . .

Yes! Six-eight, here! Of course I can't creep out, you silly basket, Do I know the Sergeants' Mess is stuffed with beer? Make an inspection? . . . Yes! You heard the first time! What do you take me for? Have I a thirst? Bog off! . . . good-bye . . . good-bye!

I hope the children Are settling down to school. Exam term's worst. There used to be a peep-hole round the blackboard—Oh, Lord. It's just on thirty years ago! And a cherry-tree that stood between two medlars, Their trunks were lime-washed . . .

Ycs!...Hullo!...hullo!
This is the Adjutant of One-owe—Oh! Good morning!
Good morning, sir! I didn't catch your voice!
I beg your pardon, sir? Not quite in order?
That 765. C. for Sergeant Joyce!
My Orderly Room gone haywire? I don't think so....
They still keep cracking.... Cracking, sir—not cracked!
Oh, yes, sir; I'll check up, sir; right away, sir!
You think it's time all V.R. types were sacked!
Well, if I may point out ... Hullo! Hullo, there ....
Oh! well, I've had it!

I wonder if the sheds Down Deepy Lane still hold those keeper's relics" My boyhood knew, of rooks' and weasels' heads, Ten rows of whitened skulls, half-green with lichen, Nailed as a vermin's warning! I can't think why
They stirred such thoughts! The very hedgeman's chopping Was wicked Long John Silver stumping by! There was a path that curved beside a covert And broached its shallow ford across a stream; No Turpin ever spurred to York so madly As galloped I, past Libsters—in that dream! And now, since they're so much their father's daughter, I have small doubt, but my young two make play Out of their window; one as Shalott's Lady, And one as Arthur's Knight to ride that way. They'll get it all confused, and poor Sir Tristam Will find himself involved with Genevieve! And Joan of Arc will scorn King Richard Lion-heart-I'll have to get it straightened out next leave! Yet, who should risk incautiously to tamper With a dream so like the mirror in that Tower, It shatters at the first unhappy blunder And scatters fragments of an age-long hour!
Dear hearts of mine! What promise can I give you That you shall reach where once the spirit led? " Adjutant here! . . . I'm listening, Operations! Right! I'll take action . . . Air-raid Warning Red!"

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# STATISTICAL REVIEW FOR FEBRUARY—APRIL, 1943

#### FEBRUARY.—PART I.

EUROPEAN THEATRE.

GENERAL.—R.A.F. aircraft operated on all the fourteen days and nights of this

Bomber Command operated every day and on twelve nights (including sea-mining and anti-submarine patrols). Nine major bombing attacks were carried out on Cologne (twice), Hamburg, Wilhelmshaven, Turin, Milan and Lorient (thrice). A number of minor attacks were made on German targets, and in Italy Spezia was bombed. By day, bombing raids were made on seven days, German targets being the objective on one occasion, the rest coming within occupied territory.

Fighter Command operated each day and night. On two days the totals of sorties

flown were approximately 600.

Coastal Command aircraft flew continuously throughout the month.

WEATHER.—On the whole the weather was more favourable during the first fortnight of February than during the previous month. In the attacks on Lorient and Turin the weather was excellent. Conditions were difficult for the raid on Hamburg on 3rd/4th, when the temperature fell to forty degrees below zero, ice forming inside and outside our aircraft; violent electric storms were encountered on the journey out.

Severe icing was also experienced by our bombers over the North Sea while en route

for the attack on Wilhelmshaven on the 11th/12th.

U-BOATS AND SHIPPING.—The three principal home commands continued to direct much of their effort to striking at and warding off the enemy's U-boat effort. Consistent attacks on enemy communications (listed below) also assisted in hampering the organization of this effort.

Bomber Command made heavy attacks on three nights, mounting in weight, on the U-boat base at Lorient, dropping over 1,000 tons of bombs on the third night. Night raids were also made in force on the port and yards of Hamburg on the 3rd/4th and on Wilhelmshaven on the 11th/12th. U-boat components are also among the chief products of Cologne, raided twice on the 2nd/3rd and 14th/15th.

Of the bombing sorties sent out by this Command in Northern Europe by night during this fortnight, approximately 75 per cent. were sent on the raids on Lorient, Hamburg and Wilhelmshaven—all intimately connected with the U-boat campaign.

The ports and shipping at Boulogne and St. Malo were attacked by day on the 13th, the Bostons and Venturas being escorted by fighters.

Anti-submarine patrols were flown by Bomber Command on every day in this period. Sea-mining was carried out on nine nights of the fourteen, several hundred mines being laid in enemy waters where they can effectively strike at the enemy's communications and U-boats in passage and on trial.

It is now known that one day in January a vessel of some 1,200 tons sank in the Little Belt, and on the same day a schooner was damaged by a mine in the Kattegat. Later in the month a motor-vessel sank near the entrance to the Sound and a vessel

of more than 3,000 tons sank off the Frisian Islands after striking a mine.

In the January attacks on Flushing the ship-building shed of the De Schelde shipyard, west of the marine dock, and a shed on the west side of the Inner Haven East were severely damaged.

Fighter Command flew shipping protection sorties on all the fourteen days and

six of the nights, close on 700 sorties being made.

Anti-shipping patrols were carried out on six days and three nights. Shipping

attacked off the Dutch coast by Fighter Command included an armed trawler.

Coastal Command maintained continuous anti-submarine and reconnaissance patrols, representing some 80 per cent. of the sorties made. Shipping was also escorted on twelve of the days.

Over the Bay of Biscay the enemy again resisted anti-submarine patrols, and on the 4th a Halifax shot down a Ju. 88, and on the 9th Beaufighters destroyed three Ju. 88's. A Beaufighter destroyed a flying-boat off Norway on the 2nd.

Army Co-operation Command aircraft flew routine shipping and reconnaissance patrols on thirteen days. Coastal shipping was attacked on three days.

TRANSPORT.—The enemy's communications on land as well as his shipping were again attacked by aircraft of Bomber, Fighter and Army Co-operation Commands.

Bombers attacked specific railway centres in occupied territory or Germany on five days, Venturas on Bruges and Abbeville on the 2nd, Venturas on Abbeville on the 3rd, Venturas on the railway yards at Caen on the 10th, Mosquitoes on North-West Germany on the 12th, and Mosquitoes on the railway workshops at Tours on the 14th. The first three of these attacks were heavily escorted by aircraft of Fighter Command.

In the attack on railway targets at Caen on the 10th, sixteen bombs burst in the western half of the marshalling yards, the engine sheds receiving two direct hits and several bombs fell across the eastern part of the passenger station and goods depot. The main roads to the south of the yards and industrial buildings to the south of the river were also hit.

Cologne, attacked twice by night, is one of the focal points of the German transport system. Turin and Milan, attacked during this fortnight, are also important railway centres in the Italian railway system.

Fighter Command aircraft sent out offensive sorties against enemy transport on

seven days and three nights, some forty trains being attacked.

Aircraft of Army Co-operation Command attacked railway targets, including some

fifty trains, on nine days.

It has now been ascertained that in the daylight attack on the railway viaduct at Morlaix on 29th January one arch was partially demolished and another damaged, causing a re-routing of traffic.

ITALY.—Italy was twice raided by Bomber Command in addition to the attacks made from the Middle East on the Italian mainland. On the night of 4th/5th more than 350 tons of bombs were dropped on the industrial centre of Turin. The raid on Milan on the 14th/15th, while not so heavy, was favoured with extremely clear conditions for bombing.

ENEMY ACTION OVER GREAT BRITAIN.—The enemy sent bombers or fighters over Great Britain on ten days but the total involved was considerably less than one hundred. On four of the fourteen nights enemy bombers attacked this country, and on two other nights hostile aircraft flew overland without making an attack. A score of aircraft were involved in all these night operations.

To combat this effort and other operations of the enemy off the coasts of this country, Fighter Command flew more than 2,000 sorties.

#### MEDITERRANEAN FRONT.

MIDDLE East.—Air operations were carried out during every day and six nights of the first half of the month. Land operations were mainly confined to patrol work. All types of aircraft of the Middle East Command were in action. In addition to attacks on ground troops and on vehicles on the roads behind the enemy's lines, bombing operations were directed against his sea and land communications and supply bases. Attacks were made on Palermo on the 3rd, 3rd 4th, 5th oth and 8th 9th, on Messina on the 3rd and 8th, and on targets in Southern Sicily on the 3rd, 6th, 7th, 9th/10th, 10th, 12th 13th, 13th and 13th 14th. On the 7th, Naples was attacked by Allied heavy bombers. Airfields in Crete were attacked on the 9th 10th and 13th 14th. On the 13th and 14th targets in Southern Italy were attacked.

Aircraft based on Malta played an increasing part in offensive operations, mainly

against railway communications.

On the 14th it was reported that 1.073 enemy aircraft were destroyed or left abandoned on enemy landing-grounds between El Alamein and Tripoli during the 8th Army's advance. A further too were shot down in combat and 800 more probably shot down in combat and by A.A. fire.

Arracks on Mediterranean Shipping.—On seven days and two nights our aircraft successfully attacked enemy supply ships, tankers and merchant vessels off the coasts of Tunis, Sicily and Southern Italy, in addition to shipping in the harbours of Messina, "Como and Naples.

Anti-submarine patrols, escort duties and sorties in protection of shipping were carried out continuously by the various Mediterranean Commands of the R.A.F. From one base in the Western Mediterranean more than 300 sorties were flown on antisubmarine patrols and escort duties. On one day nearly 100 Hurricanes were engaged on shipping protection patrols.

North-West: Africa.—Our aircraft were in operation against the enemy on thirteen days of the fourteen under review, in addition to operations on five nights of that period. In addition to support given to our ground forces and attacks on enemy troops and road vehicles by our light bombers and fighters the following targets were attacked by our bombers: Docks at Tunis (once), at Bizerta (three times), at Sousse (once), and at Trapani, Sicily (once); airfields at Tunis (once), Sfax (once), Gabes (three times), in Sardinia (twice) and at Kairouan (once). Ground targets at Sened were attacked three times. In the attack on the docks at Tunis, two ships of a convoy entering the harbour were hit and nine protecting enemy fighters were shot down. In supporting our ground troops in Tunisia one patrol of P. 40's, in preventing an attack by Ju. 87's, shot down three of them. Strong enemy fighter opposition was encountered in our attack on the docks at Sousse, when eighteen enemy fighters were shot down for the loss of five of our aircraft.

West Africa.—Escorts for shipping, coastal reconnaissances or anti-submarine patrols were sent out almost every day by aircraft of this Command.

#### INDIA—BURMA FRONT.

The R.A.F. carried out offensive operations against the Japanese on every day and on twelve nights during the first two weeks of the month. Liberators, Wellingtons, Blenheims, Mohawks and Hurricanes were among the aircraft which were in action in these attacks.

As in January, the targets attacked ranged from the North Arakan coast to the southern tip of Burma and inland-occupied positions and airfields in central and southern Burma. Objectives on Akyab Island were attacked on fourteen occasions; Rathedaung was attacked four times; Rangoon was bombed three times by four-engined bombers, Liberators dropping thirty tons of bombs on the second of these raids. Four attacks were made on Mandalay.

Enemy rail and road transport and marshalling vards were attacking, and rivercraft on the various rivers were shot up. Coastal shipping along the Arakan coast was

continuously harassed.

Three attacks were made in one day (9th) on the Japanese supply base at Magyichaung, at the southern end of the Mayu peninsula, by formations of Blenheims escorted by fighters, while other Blenheims attacked objectives at Thazi Junction.

#### AIRCRAFT CASUALTIES.

In offensive operations over Europe from home bases eighteen enemy aircraft were destroyed. This total includes enemy aircraft destroyed during bombing raids, fighter sweeps and fighter-escort activities. Over Britain seven enemy aircraft were destroyed, making a total of twenty-five destroyed during this period by home-based aircraft.

In the course of all these operations the R.A.F. lost eighty-eight aircraft over

Europe and nil over this country, making a total of eighty-eighty.

The losses announced by the Middle East Command totalled nine as against the destruction of twelve Axis aircraft. Of these, four were destroyed by aircraft based on Malta.

Allied Force Headquarters in North Africa announced the destruction during the

fortnight of ninety-six enemy aircraft for the loss of forty-two Allied aircraft.

In India and Burma four enemy aircraft were destroyed for the loss of two Allied aircraft.

#### PART II.

#### EUROPEAN THEATRE.

GENERAL.—R.A.F. operational aircraft flew on all the fourteen days and nights of this period. Bomber Command operated on every day and on twelve of the fourteen nights. Bombing attacks were made on eleven nights and seven days, objectives in

Germany being raided on ten of these nights and once by day. For the second time in a month it was announced, following the St. Nazaire raid, that 1,000 tons of bombs had been dropped in one raid. The rate of loss has been comparatively low in these raids, the figure being about half that sustained last summer. It cannot, however, be expected that in summer conditions this low rate of loss will be maintained.

Fighter Command exceeded a total of 750 sorties on one day during this period. Escorts were provided for bombing raids on eight days. On each of the last three days of the month Whirlwinds of this Command bombed an enemy airfield, in each

case being escorted to the target.

Army Co-operation Command aircraft carried out their first substantial bombing operation on the night of 19th/20th, when important electric transformer stations on the Loire were bombed.

Coastal Command aircraft again maintained continuous operations.

Weather.—February is not usually a month of good bombing weather. Weather conditions at night were not so good as during the first half of the month. There was one patch of four successive nights when conditions were bad. On three other occasions good conditions prevailing until midnight became poor later with the development of ground mist. On seven nights conditions were good throughout. There was cloud over Wilhelmshaven when the naval base's main ammunition depot at Mariensiel was completely destroyed.

In the raid on Bremen on the 21st/22nd thick cloud was encountered all the way cn route and on the attack on Nuremberg on the 25th/26th icing and heavy clouds were

met with, but the weather was clear over the target.

U-BOATS AND SHIPPING.—U-boats at sea, in their bases and in production again engaged much of the offensive as well as the defensive efforts of the principal home commands.

BOMBER COMMAND.—Some 60 per cent. of the night sorties of this Command were directed against the U-boat bases and ports of Wilhelmshaven (three attacks), Bremen (one attack), Lorient (one attack) and St. Nazaire (one attack). Of the remaining bombing effort by night almost the whole of it was contained in the two heavy raids on Nuremberg and Cologne where U-boat components are made.

In addition to the devastation caused by the Mariensiel Depot explosion at Wilhelmshaven, sheds and stores in the naval base and dockyard and in the Commercial Harbour were hit and seven acres of the business area on the north-west side of the railway station has suffered varying degrees of damage. All the workshops in the western half of the Deutche Werke, a modernized ship-building yard used now for refitting submarines. E-boats and other light naval craft, have been severely damaged.

Sea-mining was also carried out, several hundred mines being laid in the enemy's coastal waters and estuaries to strike at U-boat movements and sea-borne transport.

Further reports of damage from sea-mining are that a motor-vessel was sunk off Malmo in December, and during January a minesweeper and two patrol vessels were

damaged by mines while sweeping off the Dutch coast.

Six attacks on four days were successfully carried out on enemy-occupied ports, Dunkirk being bombed five times and Den Helder once. In the attacks on Dunkirk three storage tanks in the refinery of Petrol du Nord have been destroyed. There were many direct hits on the quayside and several on the railway tracks beside the moles. The track near one mole was cut in three places. In the attack on Den Helder several bombs burst on the Torpedo Workshops, east of the southern entrance to the naval basin, on a large shed in the Torpedo-Boat Establishment and near to the floating dock in the Inner Hafen (naval).

Naval stores near Rennes were attacked by Mosquitoes on the 26th, as well as the marshalling yards. In this attack sixteen sheds, the largest 400 ft. by 90 ft., in the eastern part of the naval stores depot, were destroyed and eighteen damaged. In the

western part an office building was destroyed and two sheds damaged.

The unbroken sequence of anti-submarine patrols by day during the month was

continued by Bomber Command aircraft throughout this period.

Fighter Command flew on shipping protection duties on all fourteen days and seven michts. Anti slupping patrols were sent out on four days and two nights, and shipping reconnaissance was also carried out on several days. Naval aircraft operating under this Command attacked a number of small vessels off the French coast on the night of 17th/18th. Attacks were also made on shipping in the same area on the following night, Beaufighters taking part on this occasion.

Coastal Command maintained continuous anti-submarine and reconnaissance patrols, again representing 80 per cent. of the sorties. Convoy escort sorties were flown on every day. A German convoy off the Dutch coast was attacked on the night of 18th/10th.

Army Co-operation Command aircraft flew routine shipping and reconnaissance

patrols on eleven days.

TRANSPORT.—Bomber, Fighter and Army Co-operation Commands continued to strike at communications in Germany and enemy-occupied territory.

Three railway centres in France were attacked by Bomber Command: Tours on

the 15th and 18th, and Rennes on the 26th.

The two bombing attacks on Tours and the preceding raid on the 14th had particularly successful results. After the first two raids it was seen that in St. Pierre de Corps a third of the engine shed had been destroyed and a building attached largely wrecked. Rolling stock had been destroyed and the track was blocked with debris. In the railway workshops a section, measuring 130 ft. by 65 ft., of the main shop collapsed and an acre of the roof lost its lights. Half of another shop and parts of two adjoining sheds were wrecked by H.E. Three bombs fell in the forwarding sidings, destroying rolling stock and track. In the third attack the majority of the bombs burst on and around the railway workshops, many direct hits being observed.

Both Cologne and Nuremberg, the object of major night attacks, are important

centres of communication in Germany.

In the attack on the Caen railway centre of 10th February it has now been shown that the station was hit in two places and a group of warehouses to the north of the station has been destroyed over an area of two acres.

Fighter Command aircraft attacked trains on four nights and three days, and railway

targets were successfully hit by Army Co-operation Command on one day (18th).

It now appears that the repairs done to the railway viaduct at Morlaix were not effective and both tracks for a distance of 530 ft., along two-thirds of the viaduct, has been removed so that adequate repair work may be undertaken.

MISCELLANEOUS OPERATIONS.—Minor night bombing attacks were also made on Western Germany on the nights of 15th/16th, 17th/18th, 19th/20th, 24th/25th, 25th/26th, 26th/27th, 27th/28th, and 28th/1st March. The only day raid on Germany, on the 17th, was made by a few aircraft on targets in the North-West. Apart from the St. Nazaire and Lorient raids, targets in occupied territory were attacked on one night (15th/16th). Daylight attacks on occupied territory were also directed against factories at Hengelo and near Liege on the 28th.

#### BOMBING RESULTS: GENERAL.

GERMANY. Berlin.—Further information on the results of the last two night raids on Berlin show that the Borsig Rheimmetal works in Mariendorf received several hits; at Templehof a hangar was burnt out, and the Opel repair depot and a goods station damaged; in western Berlin the damage to a power station caused a failure for some hours; in parts of south Berlin tramways were out of order for three days; at Neukolln, among other damage, six acres of industrial buildings were destroyed by fire. The repair work was carried out less efficiently than after previous raids on the capital and there was a noticeable decline in the speed of the rescue work.

ITALY. Spezia.—In the attack on 14th/15th February a shed measuring 400 ft. by 75 ft. on the Canale di Circonvallazione was destroyed, and another, 280 ft. by 65 ft., was gutted. In the anti-submarine base two buildings measuring 100 ft. by 40 ft. were completely wrecked, and a multi-bay shed on the quay of the Vacchio Porto destroyed by fire.

Milan.—Extensive material damage was done in the raid on 14th/15th February in the centre of the town, and all electric trains to Varese and other centres stopped. Issoti, Fraschini, Bianchi, the Brown Boveri, Alfa Romeo, Pirelli and General Electrical Company factories and works were among those hit or damaged. In the suburbs about thirty other industrial concerns were hit.

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ENEMY ACTION OVER GREAT BRITAIN.—The enemy's effort by day over this country during the latter half of February amounted to less than fifty sorties; many of those making only brief landfall. The majority of these aircraft were fighters or fighterbombers, and less than twenty actually made attacks. Bombs were dropped on five days and four of these "tip-and-run" raiders were destroyed, representing a 20 per cent. rate of destruction among those that attacked. The maximum effort made was on the 26th, when eleven F.W. 190's crossed the coast.

By night the enemy dropped bombs on three nights but fewer aircraft were sent by night than by day, and of these five were destroyed. From the 20th until the end of

the month only one enemy bomber made a night attack on this country.

#### MEDITERRANEAN THEATRE.

MIDDLE EAST.—Operations were carried out on every day and every night during the second half of the month from Egyptian and occupied territory. These operations included shipping protection, convoy duties, anti-submarine and anti-shipping patrols. interceptions, reconnaissance sorties and attacks on landing-grounds.

Heavy bombers attacked airfields in Crete on four occasions and medium bombers raided shipping at Palermo on two nights. Targets in the Gabes area were bombed on

seven occasions and in the Mareth area five times.

Low-flying attacks were carried out by our fighters and fighter-bombers on railway

targets in Sicily and southern Italy, on landing-grounds in Tunisia and on other targets.

Intruder aircraft attacked railways west of Taranto and on one occasion in northern Sicily and southern Italy damaged six locomotives, set on fire two trains, damaged six others and scored hits on a railway bridge, a junction, a goods yard and warehouses.

In an enemy attack on Tripoli on the night of 21st/22nd at least five Ju. 88's were

shot down, two by our night fighters and three by A.A. defences.

MALTA.—Aircraft based on Malta carried out offensive operations on every day and every night during the period under review. These operations included attacks on railway targets, shipping and airfields, anti-submarine patrols, the protection of shipping, and convoy duties as well as reconnaissance patrols and offensive sweeps. Motor transport in Tunisia was bombed, a factory in southern Sicily, and trains in Tunisia, Italy and Sicily were shot up.

Various other targets in Sicily, Pantellaria and at Taranto, Naples, Sousse, Calabria, Syracruse, Trapani, Comiso and Pozzalo were among those attacked by

Malta's aircraft.

NORTH-WEST AFRICA.—Our aircraft were in operation against the enemy on every day in addition to operations on eleven nights of this period. Our fighters and light bombers, as well as operating in support of our ground forces, made constant attacks on gun positions, enemy transportation, troops, road and rail communications and landing-grounds. During one day alone over 150 bomber and over 400 fighter sorties were flown in support of our ground forces.

In addition, our bombers attacked the following targets: airfields near Kairouan (three times), in Sardinia (once) and at Tunis (once). Bizerta was bombed once by day and thrice by night, and shipping at Palermo once. Heavy and medium bombers attacked Gabes and the Mareth defences. Gafsa was bombed five times and Kasserine

five times during the last week of the month.

Convoy duties, shipping protection and anti-submarine patrols were carried out.

Attacks on Mediterranean Shipping.—Successful attacks were made by our aircraft against convoys, supply ships, tankers and merchant vessels in the Sicilian Narrows, off the coasts of Tunis and Sicily, in the Central Mediterranean, in the Aegean Sea and in the harbours of Meles, Pizzo and Sousse. Five powered-barges were sunk in one attack off the Tunisian coast, and in an attack off southern Sicily on a convoy a supply ship was sunk and a warship and two escort vessels were hit.

Porpedo-bombers based on Malta attacked convoys north of Trapani and north

of Cape Alice.

Anti-submarine patrols, escort duties and sorties in protection of shipping were carried out continuously by the various Mediterranean Commands of the R.A.F.

From one base nearly 300 sorties were flown in anti-submarine patrols, escort inties and reconnaissance patrols.

West Africa.—Aircraft of the West African Command operated on almost every day during the period under review, in escorting shipping, on coastal reconnaissance and on anti-submarine patrols.

#### India-Burma Front.

The R.A.F. carried out offensive operations against the Japanese on every day and on eleven nights during the last fourteen days of the month. Blenheim bombers (and other Blenheims operating as escorts), Liberators, Wellingtons, Mohawks and

Hurricanes took part in these operations.

Bombing attacks were made on airfields at Heho, Magwe, Monywa, Toungoo and Rangoon; on enemy-occupied positions on the Taungup road, on the Mayu peninsula, on Akyab Island at Fort Dufferin and Mandalay, Myingam, Myaungbwe, Panktwa, Pennagyn, Prome, Rathedaung, Thazi railway junctions, Myonaung and Minbya.

Targets in the Akyab area were attacked on thirteen days out of the fourteen.

Fighter offensives were directed against railway engines and trucks in the Lower Chindwin, against coastal shipping off the Arakan coast, river launches, water transport on the Kaladan and Irrawaddy rivers and motor transport near the Taungup pass.

During the period, 13th to 19th February, seventy tons of supplies were dropped for our advanced units, and twenty-three tons were similarly delivered during the night

of 27th/28th.

#### AIRCRAFT CASUALTIES.

In offensive operations over Europe from home bases twenty enemy aircraft were destroyed. This total includes enemy aircraft destroyed during bombing raids, fighter sweeps and fighter-escort activities.

Over Britain nine enemy aircraft were destroyed, making a total of twenty-nine

destroyed during this period by home-based aircraft.

In the course of all these operations the R.A.F. lost sixty-eight aircraft in Northern

Europe and nil over this country.

The losses announced by the Middle East Command totalled eleven as against the destruction of twenty-four Axis aircraft. Of these five were destroyed by aircraft based on Malta.

Allied Force Headquarters in North Africa announced the destruction during the second half of the month of sixty-seven enemy aircraft for the loss of sixty-two Allied aircraft.

In India and Burma seven Allied aircraft were lost.

#### MARCH.

#### EUROPEAN THEATRE.

R.A.F. operational aircraft continued to fly on every day and night in the month. Major operations, however, were prejudiced by the weather. There were three well-defined spells of contrasting flying weather during March. Throughout the first two weeks of the month weather at home operational bases at night was almost consistently good. On only a few occasions during this period did visibility seriously deteriorate towards dawn, but there was one isolated night of fog. For the greater part of the following fortnight, however, widespread areas of fog or very low cloud caused poor or bad conditions practically every night, and it was not until the last few nights of the month that meteorological conditions improved again.

Over the month as a whole twelve nights were good and thirteen nights were poor or bad. Variable nights of mainly good conditions up to midnight but with marked deteriorations afterwards occurred on four occasions, while on two nights good conditions as to cloud and visibility were offset by gales near the ground and very strong

winds at flying levels.

Bomber Command, which operated on twenty-one nights and every day, struck chiefly at night at Germany's industrial production. German targets were attacked on thirteen nights, ten nights in force, when eleven raids were made against Berlin (three), Essen (two), Hamburg, Nuremberg, Munich, Stuttgart, Duisburg and Bochum, in which raids more than 8,000 tons of high explosive and incendiary bombs were dropped. Two night raids were made on occupied territory by our bombers, both attacks being directed against the U-boat base of St. Nazaire.

Germany was bombed by daylight by Bomber Command aircraft on three days. Targets in occupied territory were bombed on fourteen days.

A growing dissatisfaction has been reported among the population of towns recently attacked in Germany. This is attributable to two main causes:—

(a) The apparent inability of the Luftwaffe and the flak to prevent the attacks

(b) the fact that measures for helping those bombed out are no longer adequate.

In the first March raid on Berlin the fire-fighting services were quite inadequate to cope with the many fires, both in the centre of the city and in the outer districts, a strong wind spreading the flames rapidly. On the second morning after the attack the Berlin exchanges were only accepting "blitz" trunk calls at ten times the normal rate owing to the damage to telephone cables. Between Unter den Linden and Friedrichstrasse a fire was still burning three days after the attack. The main damage in this attack was caused in the western, south-western and southern parts of the capital, the damage being particularly severe in Wilmersdorf, Schoneberg, Steglitz Charlottenberg.

Fighter Command operated on every day and night of the month with the exception of the final night, 31st/1st April. Approximately 700 sorties were flown on each of

two days.

Coastal Command maintained its continuous patrols in the Battle of the Atlantic. Army Co-operation Command aircraft operated over enemy territory on nineteen days and six nights.

U-Boats and Shipping.—U-boat bases received strong punishment from U.S.A.A.F. daylight raids during the month, and Bomber Command exerted a complementary effort by night by two heavy raids on St. Nazaire, when more than 1,500 tons of bombs were discharged on this target. Hamburg, Germany's largest port and U-boat production centre, was the objective of one of Bomber Command's heaviest raids of the month on the night of the 3rd/4th. Munich and Stuttgart, which were heavily raided by night on the 9th/10th and 11th/12th respectively, both make submarine engines and component parts. The industries of the other German towns attacked also contribute to U-boat construction or equipment.

By day, Bomber Command raided Rotterdam on two successive days (28th and The Cockerill works near Liege, which make parts for submarines, were bombed by Mosquitoes on the 12th. Action against communications, particularly the bombing of the railway viaduct at Morlaix by Whirlwind bombers of Fighter Command,

hindered the enemy's access to his bases.

As a result of the R.A.F. attack on the night of 24th/25th February and the U.S. raid of 26th February on Wilhelmshaven, photographic reconnaissance has shown that several buildings of the harbour works department in the Strombau Hafen were damaged and two blocks of submarine crews' barracks partly destroyed and other damaged. A direct hit on the southern quay damaged a 240 ft. oil barge, which was awash amidships. In the Fort Mariensiel mine depot the central building has been destroyed by fire. Considerable damage was caused in the main railway station and in the Middelsfahr, Metz and Ebkeriege districts.

Reconnaissance now shows that in the attack on Denhelder on 19th February twothirds of the torpedo workshops were destroyed, three shops and two sheds were totally destroyed and one shop and one shed partially destroyed, and buildings were also

damaged in the torpedo-boat establishment.

Prior to the last two raids of March on St. Nazaire, reconnaissance shows that the destruction in the port area includes buildings on all the quays. In the Chantiers et Ateliers de St. Nazaire (Penhouet) and Bassin de Penhouet, the submarine stores shed, the pipe and tubes works, the munitions store and several warehouses and sheds, including an area of 21 acres, have been destroyed or severely damaged by fire or high explosive. In the Chantiers et Ateliers de la Loire the heavy sheet metal shop, the aerofoil factory and the girder steelwork shop have been wholly or partially destroyed, the gas supply affected and several barrack buildings destroyed.

Reconnaissance after the raid on St. Nazaire of the 22nd/23rd show that damage was done to the rivet and welding shops and power station. In the Chantiers et Ateliers de la Loire two buildings have been gutted and one end of the turbine workshop severely damaged; a timber warehouse and light sheet-metal shop were further damaged. In the Bassin de Penhouet damage by fire has been caused to the electric sub-station and stores and foundries; there are new craters on railway sidings and a turntable destroyed.

Bomber Command carried out sea-mining on the majority of nights during the month in the enemy's coastal waters and estuaries. During the month reports of the sinking of some ten vessels after striking mines laid from the air have been received.

Fighter Command flew patrols in protection of shipping on every day of the month and ten nights. Ten daylight attacks and one by night were made on enemy shipping.

Coastal Command energetically sought out U-boats at sea. On three days during the middle of the month, when our bombers were unable to make any major attacks owing to weather, Coastal Command aircraft were making sixteen attacks on U-boats in the Atlantic. Sea-mining was carried out on nine nights and anti-shipping forces were sent out on six days.

A Coastal Command Beaufighter destroyed a Ju. 88 over the North Sea on the 1st, and other aircraft of this type shot down over the Bay of Biscay on the 12th a Foche-

Wulf Kurier.

Army Co-operation Command carried out shipping reconnaissance patrols on six days.

TRANSPORT.—Bomber, Fighter and Army Co-operation Commands of the R.A.F., in conjunction with U.S.A.A.F., attacked enemy communications by a variety of means. The cumulative effect of these attacks is now having heavy consequences on the enemy.

Reports have been received that all steam locomotives in the district of Pau have been sent north to replace locomotives damaged by the R.A.F., and owing to the difficulties created by the damage done by R.A.F. attacks on Tours, where much of the repair work for steam locomotives in south-west France is done.

It is also reported that by the middle of January engine losses of the enemy in France, Belgium, Holland and Germany were averaging 150 a month as a result of various forms of air attack. In Sicily, in Southern Italy, since January, some fifty locomotives had been destroyed or put out of action by the middle of March.

Bomber Command made attacks on railway centres in Germany or occupied

territory: on eight days.

In the attack of 4th March on locomotives, repair shops and engine sheds and the steel tube factory at Aulnoye, twelve bombs burst on the factory and at least four on the engine sheds. These objectives were again attacked on the 8th; and subsequent photographic reconnaissance has shown widespread damage, nearly twenty acres of the

roof of the factory having been destroyed or damaged.

When Le Mans was attacked on 4th March by Mosquitoes bombs fell on the workshops between the Roundhouses, on a long shed and on timber stacks east of the reception siding and on the tracks in the sidings and north of the Roundhouses. In the Arnage marshalling yard one of the steam and electric locomotive sheds was severely damaged and a large hole can be seen in the centre of the roof of the other shed. The wagon paint and repair shops have sustained severe roof damage and there were two direct hits on the railway track.

Railway targets at Lingen, in North-West Germany, were attacked by Mosquitoes on the 8th, as well as the railway centres of Aulnoye and Tergnier, in Northern France. Le Mans railway centre was again raided on the 9th by Mosquitoes. The railway workshops at Paderborn, North-West Germany, were the Mosquitoes objective on the 16th. Four days later railway objectives at Louvain were hit and a single Lancaster bombed a railway target at Leer. North-West Germany, also on the 20th.

bombed a railway target at Leer, North-West Germany, also on the 20th.

When the St. Joseph locomotive works at Nantes, Northern France, were attacked by Mosquitoes on the 23rd, the only part to escape damage was an office building. The heavy machine building was severely damaged and seventeen locomotives from St. Nazaire awaiting repair were put out of action. Not a house in the neighbourhood

of the works was hit.

Mosquitoes again attacked railway objectives in North-West Germany on the 24th, and Venturas took up the attack on the 29th with an escorted raid on the railway yards at Abbeville.

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Several of Bomber Command's night raids on Germany helped to disrupt communications, notably the attacks on Nuremberg, Munich, Essen and Duisburg.

Fighter Command brought a new intensity to its attacks on communications with the use of Mosquitoes inside Germany, in addition to the shorter-range raids by Whirlwind bombers.

During the attack on Munich of the oth/10th sixteen acres of the Rathgeber railway wagon works were damaged; the electric locomotive servicing shed and the steamengine Roundhouse near the main station were burnt out, and inside at least eighteen electric locomotives could be seen. The railway marshalling yards in north-east Munich were also damaged.

Fighter Command's Mosquitoes made their first daylight incursion into Germany on the 27th, when barges, trams and lorries were attacked. These aircraft also attacked

locomotives in Brittany on the 30th:
The important viaduct at Merlaix, Brittany, was again the object of Whirlwind bomber attacks, and altogether Fighter Command sent out offensive or intruder patrols against enemy transport on fourteen days and seventeen nights. Nearly one hundred successful attacks on trains were made during the month.

MISCELLANEOUS OPERATIONS.—Minor bombing operations were carried out against Germany on the nights of 2nd/3rd and 4th/5th. By day Mosquitoes carried out the most successful raid on the enemy's only molybdenum mine at Knaben, in Norway, on the 3rd, the Renault factory at Le Mans on the 0th, a factory at Hengelo on the 27th, Liege on the 28th, and the Phillips's factory at Eindhoven on the 30th. Venturas attacked the airfield at St. Brieue on the 15th and Maasluis, near Rotterdam, on the 18th.

Fighter aircraft escorted bombers, both British and American, on twelve days and carried out sweeps on fourteen days. Mosquito fighter aircraft of Fighter Command were reported in action over the Bay of Biscay on the 22nd, when two Ju. 88's were shot down.

ENEMY ACTION OVER GREAT BRITAIN.—The total number of enemy bombers which attacked this country by night during the whole of March was barely half the number sent out on one night raid by Bomber Command on Germany. The only considerable force sent by the enemy by night was between sixty and seventy on the night of During the month thirty-three of these night raiders were shot down.

The fighters, which solely constituted the attacking force by day, numbered approximately half the bombers sent by night. Twenty-seven "tip-and-run" raiders paid the penalty by day. The maximum number of enemy aircraft to fly over this country on

any one day was thirty—on the 12th.

Great Britain was raid free on sixteen nights and eighteen days.

#### MEDITERRANEAN THEATRE.

NORTH-WEST AFRICA.—Operations against the enemy by our fighters and bombers in support of our ground forces advancing against Rommel were carried out on twentynine days of the thirty-one. In addition, on fifteen nights of the month airfields, landing-grounds, troops concentrations, transport columns and docks were bombed.

In one sweep over the sea Allied aircraft shot down seventeen enemy aircraft from

a large formation they encountered.

On 21st March eleven enemy aircraft were destroyed by fighters escorting a forma-

tion of bombers.

On three nights during the month over 150 sorties were made and during daylight some 1,000 sorties were flown on four occasions, culminating in more than 1,100 sorties on the last day of the month.

MALTA.—Intruder aircraft from the Island were over Southern Italy and Sicily on twelve nights of the month. Fighter-bombers operating over the same area on nine daylight sorties attacked aerodromes, railway communications and industrial targets.

Offensive patrols sought Axis shipping on twenty-eight nights.

Malta's aircraft flew sorties every day of the month and every night except one. MIDDLE EAST.—Middle East aircraft carried out sorties every day of the period under review. Naples was bombed on three nights during the month in addition to once in daylight. Messina had two raids—one during the day and one at night, and Palermowas attacked three times at night.

The enemy lost at least two Ju. 88's during an unsuccessful attack on an Allied

convoy in the Central Mediterranean.

ATTACKS ON MEDITERRANEAN SHIPPING.—Aircraft based on Malta made six night and two daylight attacks on shipping near the south coast of Italy and in the Central Mediterranean. A large supply ship was set on fire and a very large tanker hit.

Shipping at Palermo was attacked by Middle East aircraft. Aircraft from North Africa made thirteen sorties against enemy shipping targets, which included convoys of motor barges sighted between Sicily and Tunisia, and the docks at Palermo and Sousse.

#### INDIA-BURMA FRONT.

The R.A.F. in this area carried out sorties every day and on twenty-two nights of the month, and gave constant support to our land forces. Activity was on a greatly increased scale during the month. Between 4th/6th March twenty tons of supplies were dropped to forward troops.

Targets attacked during the month included Rathedaung (fifteen times), Akyab (twelve times), Gokteik (six times) and Mandalay, Rangoon and Toungoo (each five

times).

#### AIRCRAFT CASUALTIES.

In offensive operations over Europe from home bases thirty-six enemy aircraft were destroyed. This total includes enemy aircraft destroyed during bombing raids, fighter sweeps and fighter escort activities.

Over Britain sixty enemy aircraft were destroyed, making a total of ninety-six

destroyed during this period by home-based aircraft.

In the course of all these operations the R.A.F. lost 189 aircraft in Northern

Europe and one over this country.

The losses announced by the Middle East Command totalled two, as against the destruction of twenty-seven Axis aircraft. Of these nine were destroyed by aircraft based on Malta.

Allied Force Headquarters in North Africa announced the destruction during the

month of 284 enemy aircraft for the loss of 110 Allied aircraft.

In India and Burma twenty-six enemy aircraft were destroyed for the loss of

eighteen Allied aircraft.

In addition to those already announced in last month's issue, one more enemy aircraft was destroyed in North Africa during February.

#### APRIL.

#### EUROPEAN THEATRE.

The offensive against the enemy's war machine, particularly his armament and U-boat production, his shipping and land communications, was developed by the four home operational commands of the Royal Air Force during the month. Complementary to the familiar blows of Bomber Command's heavy attacks on Germany and Italy were the widespread operations by Fighter, Coastal and Army Co-operation Command aircraft against trains, river and canal traffic and shipping. Bombers were also engaged on a record mine-laying operation in the Baltic towards the end of the month.

WEATHER.—During the first three weeks of April there was little to interfere with night flying in the eastern half of England, while poor visibility was infrequent and usually developed after midnight.

Bombing Effort.—Bomber Command operated on every day except two during the month and on twenty nights. Germany was raided on five days and eleven nights and Italy on two nights. Objectives in occupied territory were attacked on fifteen days and one night.

The aggregate connage of bombs dropped on Essen passed the 10,000-ton mark

during the raid made on the last night of the month. In the ten major night raids on Germany objectives included Duisburg, Essen, Stettin, Rostock, Berlin, Mannheim, Kiel and Stuttgart; almost ten thousand tons of bombs were dropped and approximately another thousand tons fell in the two attacks on the Italian naval base of Spezia. In three of the raids on Germany more than a thousand tons of bombs were dropped.

Some Results.—Photographs taken following the attacks on 8th/9th and 9th/10th April on Duisburg show that among the workshops and buildings damaged were three in separate branches of the Vereinigte Stahlwerke A.G. (munitions). A bicycle factory and another producing electrical apparatus have been severely damaged, the goods station partially destroyed, and there is damage to an engine roundhouse and to a work-

shop at the locomotive repair shops.

Photographs taken after the raid on Stuttgart on 14th/15th show extensive damage in the north and north-eastern districts of the town. In Bad Cannstadt the power station, the Elektron Metall Works, a sugar factory and other industrial buildings have been damaged, and an area of thirty acres has been devastated by fire and high explosive. Railway repair shops in Unterturkheim have been destroyed over an area of nine acres. In the centre of the city several railway sheds and buildings north of the main station have been damaged, some severely, and there are several direct hits on the railway lines.

The V.K.F. Norma factory, manufacturing ball-bearings, was hit and over £100,000

worth of damage caused.

To the north-east there is considerable damage in the districts of Berg and Hofen, while the suburb of Mulhausen has been practically devastated.

Altogether some forty industrial and commercial concerns were effected. Barrack buildings have been hit and the generator house at the town power station has been

gutted.

In the Mannheim attack of 16th/17th photographs show damage by fire and by high explosive in the works of the I.G. Farbenindustrie and in the dock area to the northwest. In the I.G. Farbenindustrie the synthetic oil laboratory and another research laboratory have been damaged by fire, one large workshop has been burnt out and some fifteen other workshops have been damaged, together with the power station, which appeared inactive.

Several factories in and around the town have received serious damage, and in the dock area north-west of the town, where damage is notably heavy, approximately eight acres have been devastated. Other incidents include: main railway station, hit on main buildings and tracks; tramway depot, completely gutted; Kaiser Wilhelm Barracks, eleven huts damaged (three of them severely); The Carl Phillip Palace, damage by fire.

In the dock areas warehouses and transhipment sheds have been destroyed and there

is severe damage to timber and other goods stacked in the yards and quays.

It is now known that damage to the Schiess Defries machine-tool works at Dusseldorf last year caused several months' delay in the completion of a new programme for heavy flak. One of the principal causes was the complete destruction of the drawing office, which considerably hampered the production of the necessary new machine tools.

GERMAN MORALE.—The effect of the raids is increasingly felt throughout Germany and reports suggest that it affects most soldiers home on leave who are shocked at the conditions in their local town and are more prone to criticize the regime openly.

The following is an extract from a letter found on a body of a German soldier

killed on the Russian front. It refers to the R.A.F. raid on 5th/6th March:

"It was an inferno. Bomb followed bomb, streams of phosphorus flowed from above, and incendiary bombs fell without interruption. It is a miracle we are still alive. Our district is completely in ruins and only western parts of Essen remain standing. It is difficult to visualize what everything looks like now. We are all completely worn out. Only ruins are to be seen whichever way one looks. If everything is going to be destroyed it would be better for you not to come here. I shall not be able to stick it. Approach of darkness always makes us shiver in anticipation of air raids.—Your Wife and Son."

Soviet official statements of 25th April, after referring to recent articles by Goebbels that the morale of German civilians had not been affected by recent R.A.F. attacks,

states that this assertion is completely disproved by the thousands of letters found on German soldiers captured or killed on the Russian front. Among the letters quoted was one from Berlin which stated:—

"If you take a tram ride to Wilmersdorf you could imagine yourself in Stalingrad, such is the extent of the damage."

There is a growing disinclination in some areas to resort to cellars during raids

because so many occupants had been drowned by bursting pipes.

The authorities are perturbed by the breakdown of civilian administration which has followed our most severe attacks, such as those on Essen and Nuremberg. In both these places the problems of relief, alternative accommodation, evacuation and food supplies were only solved in a makeshift way. It is said that this question of how to avoid a complete breakdown in the municipal administration of heavily attacked cities was the main subject discussed at Goebbels recent conference in Essen.

TRANSPORT.—The enemy's lines of communications were attacked by all the home commands. In addition to the damage caused in major night operations Bomber Command made thirteen daylight raids on railway centres both inside and outside Germany, and bombing attacks were made on railway targets by Fighter Command on six days.

Army Co-operation Command joined with Fighter Command in other day and night attacks on the Nazis' railway, river and canal system. Some 150 trains were attacked by Fighter Command during the month and more than a score by Army Co-operation aircraft.

Among the railway centres raided have been Ehrang, Trier, St. Brieuc, Abbeville, Ronet, Malines, Caen and Haarlem. Results of earlier attacks now known are:—

During the attack on Tours on 14th February a Mosquito dropped a bomb on the main Brest—Paris line, a little to the east of Laval: the bomb burst in the cabin of the locomotive and as a result both lines were put out of commission for some hours; among the traffic that had to be diverted were four special German troop trains and one leave train. In the daylight attack on 16th March on Paderborn the engine shed was severely damaged and about one-third of it destroyed; the main shop of the railway workshops received two direct hits, and damage caused to the main entrance block and two platforms of the railway station, several smaller workshops being destroyed or damaged. During the attack on Munich of 9th/10th March altogether fifty steam and electric locomotives were totally destroyed in engine sheds in the neighbourhood of the main station; damage to the electric system and to the power cables was severe and all movement of electric locomotives was stopped; traffic on the Munich-Innsbruck line (at present one of the most important in Europe) did not function normally until sixteen days after the attack. In the raid on Le Mans on 9th March the electricity supply was cut and a considerable amount of machinery was destroyed or damaged; six engines, eight tenders and eight wagons were damaged, the coal shoot was put out of action and a number of buildings rendered unusable; work as a whole was completely disorganized.

U-BOATS AND SHIPPING.—Kiel, Stettin, Rostock and Wilhelmshaven in Germany, Lorient and St. Nazaire in France, and Spezia in Italy came under the bombs of R.A.F. night raiders during the month. Six daylight raids were also made by Bomber Command on the enemy's ports: Brest (3rd and 5th), Rotterdam (4th), Cherbourg (15th and 20th), and Dieppe (18).

Fighter Command, both with R.A.F. and naval aircraft, carried out anti-shipping operations on twenty-two days and nineteen nights, some eighty enemy vessels of all

types being attacked. Fighter-bombers bombed the docks at Dieppe (4th).

Coastal Command aircraft made attacks on enemy convoys and shipping on eight occasions, some nine ships being hit with torpedoes.

Army Co-operation aircraft took part in anti-shipping operations on four days. During the attack on 3rd April on the base at Brest bombs burst on the naval arsenal. The machine and electric works were damaged and munitions in Depot No. 2 blew up and the building was completely wrecked. Photographs taken after this daylight attack by the R.A.F. and by the U.S.A.A.F. on 16th April show a number of fresh items of damage in the port area caused by high explosive and by fire resulting from high explosive. In the Port Militaire the main building of the arsenal power station has been destroyed at one end, while one building has been gutted and two others damaged.

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The machine workshops have been damaged, a main block of the naval barracks has been gutted and the ropery has again been hit. North of Point du Salon a bay of the main shop of the mines and torpedo shops has sustained severe damage. In addition,

the town power station has been severely damaged by fire.

Photographs taken after the attacks of 28th/20th March and 2nd/3rd April on St. Nazaire show that fresh damage has been done in the port area. In the Bassin de Saint Nazaire there were four hits on the submarine pens. The hydraulic machine-shop had been damaged by fire and iron works pantly destroyed. The dam at the north-west end of the entrance lock to the Bassin de Penhouet was hit and nearby two submarine stores were destroyed and a small floating dock which had been damaged was partly submerged. Among other buildings destroyed or damaged was the aircraft factory and the metal works in the Chantier et Ateliers de la Noire.

SEA-MINING.—Bomber aircraft laid a record number of mines in enemy waters, nearly twice the number being laid as was laid on average in the previous three months of the year.

Shipping Protection.—Shipping protection was provided by the three principal commands. Coastal Command aircraft flew day and night throughout the month on antisubmarine patrols, convoy escort and reconnaissance. Convoys were being escorted during every twenty-four hour period except one.

Bomber Command flew anti-submarine patrols on every day except two.

Fighter Command was engaged on shipping protection duties on every day of the month and on ten nights, 2,000 sorties being involved.

MISCELLANEOUS OPERATIONS.—Fighter sorties have considerably increased this year, April's aggregate being almost double that of January. Bombing raids were provided with fighter escorts on fourteen days and sweeps made on sixteen. Whirlwind and Typhoon bombing operations have been a feature of Fighter Command's activities, airfields, railway centres, power stations and industrial targets having been bombed by these aircraft during the month.

The proportion of offensive to interception sorties during April showed a considerable increase in favour of the former compared to the previous month. The offensive sorties for April were nearly twice as many as for March, while interception sorties

increased by only 15 per cent.

Other operations by Bomber Command during the month included daylight raids on industrial targets at Hengelo (11th), Ostend (16th) and Zeebrugge (17th and 20th).

Army Co-operation Command operated on twenty-eight days and three nights of the month.

The attacks on electric installations such as that on Le Thiel transformer station by Army Co-operation Command aircraft often produce results of commendable propor-

tions compared to the effort expended.

Information has also been received of the damage inflicted on the three important French transformer and switching stations at Creney, Chaingy and Distre as a result of the attack by aircraft of Army Co-operation Command on the night of 19th/20th February last. The raid appears to have been very successful and supplies of power to Paris from hydro-electric power stations were cut off for four days. Considerable damage was done to transformer and switchgear and to protective devices, and whilst supplies have been re-established this has only been done in such a way that the operation of the electrical network to ensure supplies of power from hydro-electric power stations to Paris has been rendered much more difficult and dangerous. As the thermal power stations in the Paris area only have a limited reserve of coal supplies, the complete cutting off of external supplies could have very serious results in depriving industrial undertakings in the Paris area working for the Germans of their vital electrical supplies.

ENEMY ACTION OVER GREAT BRITAIN.—The total number of enemy aircraft which attacked objectives in this country by day and by night during the whole of the month did not represent a quarter of the strength of one of Bomber Command's large-scale attacks on Germany. About a third of the raiders which came by night were fighters and according to recent pattern the majority of the hostile aircraft by day were "tipand-run" fighter-bombers. On no night or day did his attacking force exceed a score.

#### MEDITERRANEAN THEATRE.

NORTH-WEST AFRICA.—During the month our air offensive reached its peak, our aircraft operating on every day and twenty-eight nights. During daylight the number of sorties flown were never less than 300 on any day, rarely less than 600 and on a number of days well over 1,000 sorties were made. On several occasions more than 1,300 sorties were carried out.

Heavy, medium and light bombers, fighter and fighter-bombers were all in action and every type of target was attacked on land. Anti-submarine patrols operated against enemy shipping, and convoy escorts as well as reconnaissance patrols were carried out on every day of the month with one exception.

Operations against airfields, docks, rail and road transport in Sicily, Sardinia and southern Italy were intensified. The harbour and airfield at Naples was attacked by a strong force of heavy bombers.

Action against enemy air transport between Tunisia and Sicily was of intensive dimensions.

On the 17th/18th a large formation of Ju. 52 transport aircraft, strongly escorted by fighters, were attacked off the Tunisian coast by Warhawks and Spitfires. Forty-five Junkers and sixteen of their escorting fighters were destroyed.

On the 22nd the enemy made another big attempt to operate their transport aircraft in the same locality. During the attack by our Kittyhawks and Spitfires over thirty enemy aircraft were destroyed.

MALTA.—Malta aircraft were in offensive action against the enemy on twenty-seven days and twenty-five nights during the month. Over 1,200 sorties were made. Some 700 of these were bombing attacks, over 200 were flown in anti-shipping operations and nearly fifty in anti-submarine patrols.

The attacks were directed against railway communications, factories and other industrial buildings, airfields and seaplane bases and road transport. Many of the targets were in Sicily and included Syracuse, Ragusa, Marsemimi, Augusta, Biscari, Cassibile and Trapani. Targets on Pantellaria were also attacked, as were the airfield and coastal objectives on Lampedusa. The R.A.F. in Malta passed their one thousandth mark in enemy aircraft destroyed on 27th April.

MIDDLE EAST.—Middle East aircraft were in action on every day and thirteen nights

during the period under review.

Messina was attacked five times during the month, Naples six times and Palermo three times. Other targets during this period were the ferry terminus at San Gioranni, Rossano and Catania. The aerodrome at Bari was heavily attacked in daylight on the 26th. This raid was followed up by our heavy bombers during the night of 26th/27th.

ATTACKS ON MEDITERRANEAN SHIPPING.—North-West African aircraft took a heavy toll of enemy shipping in the neighbourhoods of Naples, Trapani, Bizerta, Tunis and Palermo. In the Sicilian Straits a convoy was attacked on the 5th, when an escorting destroyer was seen to blow up and other vessels left burning. On the next day six ships in convoy were sunk and an ammunition ship blown up at Trapani and many ships of all classes sunk and others damaged in the dock area. Of the coast of Tunisia on the last day of the month a destroyer was left burning and another destroyer and merchant ship hit. Two merchant ships, an E-boat, F-boat, a motor ferry and a number of smaller vessels were also hit.

Aircraft based on Malta operated on eleven days and seven nights against shipping near the south coast of Italy and Central Mediterranean. Off Palermo a supply ship was sunk and hits on two others made in the Central Mediterranean. Shipping was bombed off Marsala.

Three naval vessels were attacked off Levanzo and one of them blown up. Off

the Sicilian coast a large motor schooner was attacked and left burning.

Shipping was successfully attacked by Middle East aircraft, including a ferry boat off San Giovanni, vessels at Ponto Emped-Docle, a schooner in the Ionian Sea and vessels off the coasts of Greece and Rhodes Island.

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#### INDIA—BURMA FRONT.

The R.A.F. carried out offensive operations against the Japanese on every day and on seventeen nights during the month. Constant support was given to our land forces.

The previous month's increased activity was maintained during April.

Targets in the Mayu Peninsula were attacked on twenty-five occasions. attacks were made on Rangoon, and Akyab was raided on thirteen occasions. Other targets included Rathedaung (attacked four times), Mandalay (three times), Taungup (four times), Maymo (twice) and Magwe (three times). Bangkok was also attacked.

Airfields, rail, road and river transport and coastal shipping were prominent among

the many types of objectives.

#### AIRCRAFT CASUALTIES.

In offensive operations over Europe from home bases fifty-five enemy aircraft were This total includes enemy aircraft destroyed during bombing raids, fighter sweeps and fighter-escort activities.

Over Britain nineteen enemy aircraft were destroyed, making a total of seventy-four

destroyed during this period by home-based aircraft.

In the course of all these operations the R.A.F. lost 336 aircraft over Europe and

nil over this country, making a total of 336.

The losses announced by the Middle East Command totalled three as against the destruction of thirty-two Axis aircraft. Of these, twenty-four were destroyed by aircraft based on Malta.

Allied Force Headquarters in North Africa announced the destruction during the

month of 633 enemy aircraft for the loss of 195 Allied aircraft.

In India and Burma nine enemy aircraft were destroyed for the loss of eleven Allied aircraft.

#### **BOOK NOTICES**

recommend.

NAVIGATION. By J. C. KINGSLAND and D. W. SEAGER. (Oxford University Press.)

This little book is concerned with the rudimentary principles of the art of navigation as an aid to the intending air navigator with the initial stages of his training.

THESE—OUR CHILDREN. By ANTHONY RICHARD-SON. (George G. Harrap & Co., Ltd.; 3s. 6d.

A companion volume to the author's first collection of poems, "Because of These." page 186.)

LIBYAN LOG. By SQUADRON LEADER EAIN G. OGILVIE. (Oliver & Boyd, Ltd.; 5s. net.)

An impressive and realistic account of the Empire Air Forces in the Western Desert, July, 1941, to July, 1942. (See page 157.)

School Physics (Part I). By T. M. Yarwood. (Macmillan & Co., Ltd.; 5s. net.)

Based on a four-year concentric school course in Physics. Part I covers the first two years and Part II the two years preceding the School Certificate examination. More space than is usual in a book of this type has been devoted to the study of the aeroplane, and in many places the author has turned to aeronautics for practical applications of physical principles.

COMBAT REPORT. (The Story of a Fighter Pilot.) By Hector Bolitho. (Batsford; 8s. 6d. net.)

This record is a very human one and is based on the letters and diaries of a pilot, of a character formed and made whole through service with the R.A.F. Reveals the spirit of the R.A.F. through its understanding of the pilot's mind By D. O. BISHOP, B.Sc., A.M.I.E.Z., and P. A. BOSANQUET, B.Sc. (Pitman; 10s. 6d.)
This book contains many original features, making the subject much more easily understood. For example, the way in which the flight of an aeroplane has been described is less contentional than that generally adopted; the rection ventional than that generally adopted; the section on Aircraft Structures includes descriptions of the most modern methods, such as geodetic construction, the use of a keel in the fuselage, nosewheels, etc. There is a section on Hydraulics in which is described how an aircraft hydraulic that the section of the sec system is built. Finally, there is a useful chap-

FLIGHT AND AIR-FRAMES FOR THE AIRCRAFT FITTER.

BY KATHARINE Wings on Her Shoulders. Bentley Beauman, late Flight Officer W.A.A.F. With a Foreword by Lady Portal. With 40 photographs by Cecil Beaton.

ter on Blueprints. Altogether a most useful and

instructive book and one we can thoroughly

(Hutchinson; 8s. 6d. net.)
A description, based on personal experiences, of life in the Women's Auxiliary Air Force. The fine work and variety of duties performed by members of this highly efficient service are recorded by one who joined it as an airwoman and afterwards served as an officer. The book is a credit to that fine service and is a very welcome addition to the library of service records. The book has a permanent appeal and will hold an honoured place in the libraries of thousands of homes after the war.

THE STRUCTURE OF MORALE. By J. T. MACCURDY. (Cambridge University Press; 8s. 6d. net.)



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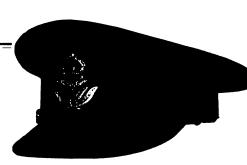
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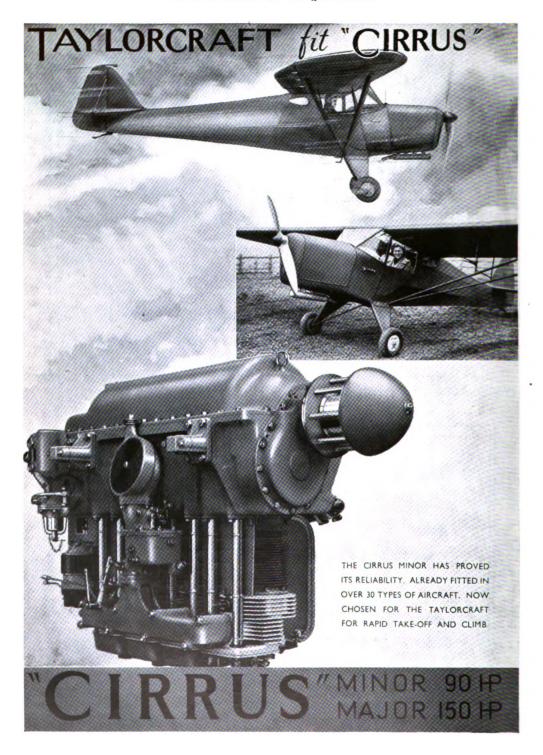


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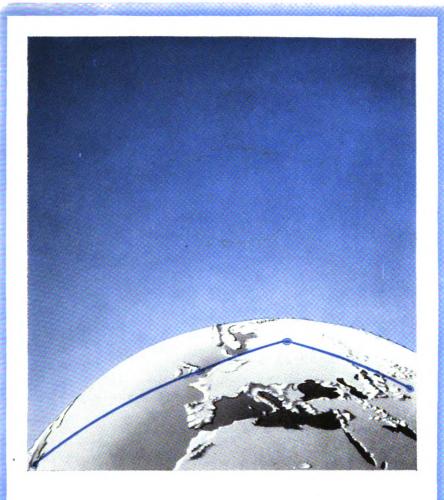
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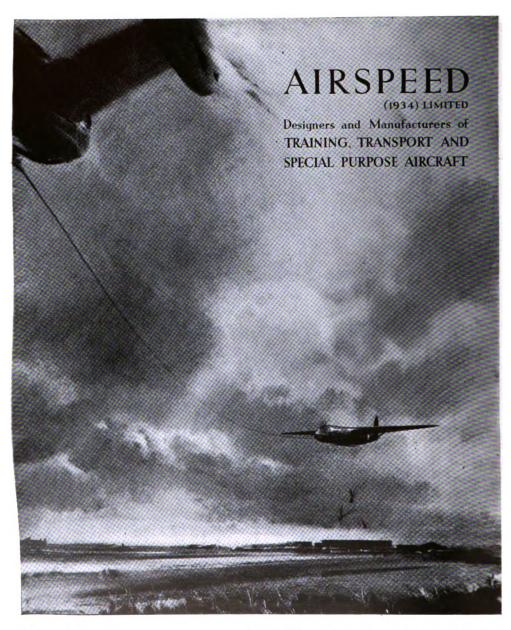




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#### **EDITOR:**

WING COMMANDER C. G. BURGE O.B.E., q.s., R.A.F.

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## THE ROYAL AIR FORCE QUARTERLY

VOLUME XIV SEPTEMBER, 1943 NUMBER 4

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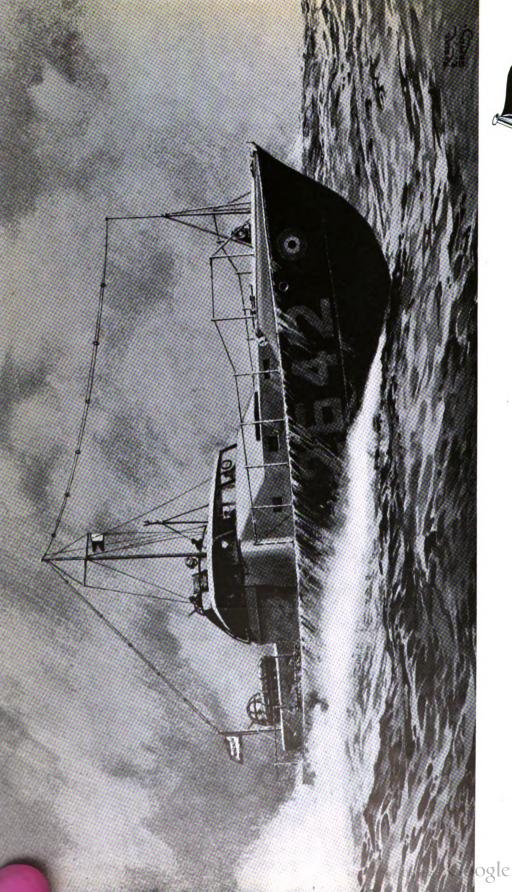


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AIRCRAFT LOSSES

(a) AXIS. (Those in brackets are by U.S.A.A.F.)

(N.B.—Exclusive of losses to the French on the Western Front and to the Russians on the Eastern Front.)

Nestern Front	Scandi- navia	Great Britain	Russia (R.A.F. Wing)	Europe	Middle East	Tunisia	Far East, India and Burma	At Sea by Royal Navy	Totals by U.S.A.A.F.	Totals by R.A.F.
	56	23 3,038 631 296 213	15	26 73 880 555 (182) 325 (990)	347 1,112 1,784 257			857		63 4,457 1,538 5,788 3,915
	56	4,201	15	1,859 (1,172)	3,500	2,231	4,042	985†	1,172	15.761

· First six months.

(b) R.A.F. AND (in brackets) U.S.A.A.F.

† Figures incomplete.

1 1		
Totals by R.A.F.	32 1,738 2,192 3,362 2,289	9,613
Totals by U.S.A.A.F.	337	293†
At Sea by Royal Navy	1       1	1
Far East India and Burma	89 (?) 60 (?)	149 (?)
Tunisia		195
Middle East	76 635 1,163 103	1,977
Europe	27 385 1,517 1,976 1,452 (260)	5.357 (293)
Russia (R.A.F. Wing)	-	ı
Great Britain	847 40 10 3	0006
Scandi- navia	55 	55
.Western Front	374	379
Year	1939 1940 1941 1942 1943	TOTALS

\* Six months. † See note below (‡); also excludes American losses in Far East. ‡ Includes all N.W. African Air Forces—i.e., includes U.S.A.A.F.

GREAT BRITAIN. AIR RAID CASUALTIES

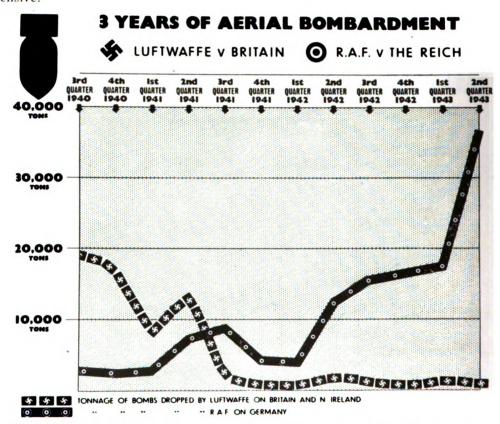
			PERIOD	: SEPTEMBE	PERIOD: SEPTEMBER, 1939-MAY, 1943.	1X, 1943.			
	No. of Months	Killed	Average Monthly	Injured	Average Monthly	Total	Average Monthly	Running Totals	
September, 1939—July, 1940	11	310	28	399	36	709	64	709	
August, 1940-October, 1940	က	14,363	4,788	20,871	6,957	35,234	11,744	35,943	Battle of Britain.
November, 1940—May, 1941	7	26,673	3,810	31,236	4,462	57,909	8,272	93,852	The Night "Blitz."
June, 1941—March, 1942	01	1,163	911 .	1,396	139	2,559	256	96,411	
April, 1942—October, 1942	7	2,887	412	3,748	535	6,635	948	103,046	" Baedeker" Raids, April
November, 1942-May, 1943	7	1,762	252	2,470	352	4,232	604	107,278	Tip and Run" Raids.
GRAND TOTALS AND OVERALL AVERAGES	45	47,158	1,048	60,120	1,380	107,278	2,272	1	
June, 1943	ı	201		284		485		107,763	

### THREE YEARS OF AERIAL BOMBARDMENT

BALANCE SHEET REVERSED.

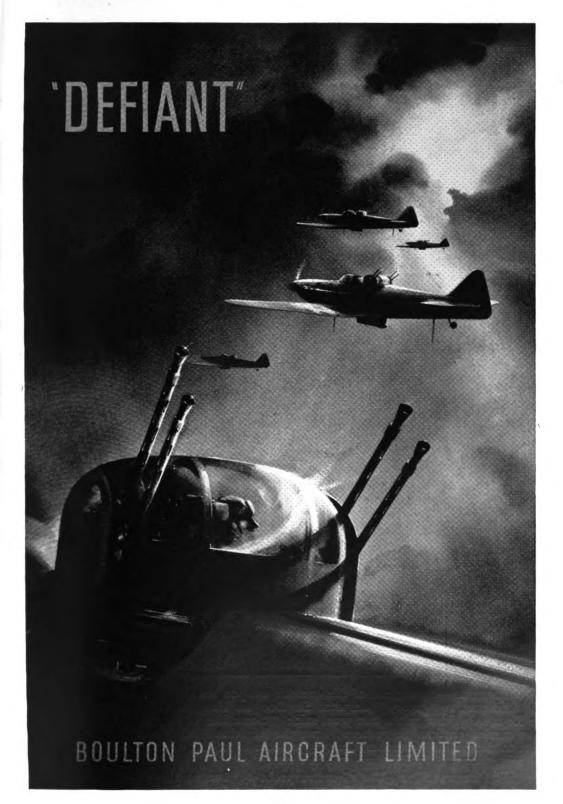
VIVID GRAPHS.

The balance sheet of the Battle of Britain advertised to the world the supremacy of our fighter aircraft over the Luftwaffe when we were on the defensive. The accompanying graph is by way of an interim report that shows the gathering momentum of our bombing of Germany and the supremacy of our bomber aircraft now that we are on the offensive.



Bomb-Tonnage Table.—Here is a comparative table of R.A.F. bomb tonnage dropped by the R.A.F. on Germany and by the Luftwaffe on Britain:—

						R.A.F. on Germany.	G.A.F. on Gt. Britain.
3rd o	quarter,	1940	 			2,750	18,900
4th	,,	,,	 			2,500	17,000
ist q	uarter,	1941	 			2,700	8,000
2nd	,,	,,	 			7,200	11,600
3rd	,,	,,	 			8,800	1,600
4th	,,	,,	 			4,300	600
ist q	uarter,	1942	 			3,500	250
2nd	,,	,,	 			12,300	1,700
3rd	,,	,,	 			15,600	600
4th	,,	,,	 			5,600	250
ist q	uarter,	1943	 			17,400	800
2nd	,,	,,	 			36,700	700
				xii	i		



xiii

Not one of the present three Axis partners ratified the Hague declaration of 1907 prohibiting bombing from the air, although Great Britain, Austria-Hungary, the United States and Turkey did so. The declaration was therefore inoperative when the last war came.

EARLY BOMBING.—Bombing began, in the primitive state of aviation of those days, with the observer leaning over the side of his open cockpit and dropping small 10 lb. bombs by hand! As the war progressed, bombing grew with the use of 40 lb., 112 lb. and even 520 lb. bombs. One German bomb that killed twelve people in London was estimated to be of 300 kg., although the Germans claimed that it was 1,000 kg., i.e., one ton. Twelve planes of the Royal Flying Corps, in co-operation with the Royal Naval Air Service, had to make two journeys to drop 3,000 lbs. on one target in those days.

Luttwatte offensive against Britain - R.A.F. offensive against Germany

· A COMPARISON ·							
	THIRD QUARTER 1940	THIRD QUARTER 1941	THIRD QUARTER 1942	SECOND QUARTER			
BOMBS ON BRITAIN		•	•				
	18,900 TONS	1,600 TONS	600 TONS	700 TONS			
BOMBS ON GERMANY							
	2,750 TONS	8,800 TONS	15,600 TONS	36,700 TONS			

MAGNITUDE.—By the end of the war this weapon had developed to the point that in his "Advance to Victory" despatch Sir Douglas Haig, in summing up the work of the Royal Air Force in the last year, said: "Some idea of the magnitude of the operations carried out can be gathered from the fact that from the beginning of January. 1918, to the end of November, nearly 5,500 tons of bombs were dropped by us."

Five thousand five hundred tons in eleven months!

THE MODERN PACE.—The Germans probably thought they had shown the world something when they dropped 18,000 tons on Great Britain in the third quarter of 1940.

Yet that was only half the tonnage dropped by Bomber Command in the second quarter of this year, and the total weight of bombs dropped by the Luftwaffe on Great Britain up to the end of June is less than half the 120,000 tons dropped by the home-based R.A.F. on Germany. This excludes bombs dropped on occupied territory and bombing by the North African and Middle East air forces and the American bombers, so that the contrast between Axis and Allied bombing is even greater than shown in the graph.

COMPARATIVE "BLITZES."—Our bombing is growing and growing in spite of the calls to provide aircraft for the Mediterranean, India and the Far East, while the German effort is dwindling and dwindling to a few hundred tons a quarter, aimed sporadically and even that at a high percentage loss of planes involved.

"Blitz" is a German word, and the verb "to Coventrate" is of Nazi origin. In operation they meant 7,500 tons dropped on the London area in eleven months and 250 tons in the Coventry raid. Bomber Command dropped 9,000 tons on Hamburg in three hours on four nights. The Hague declaration and the words "blitz" and "Coventrate" have gone home to roost!

COMPARATIVE COSTS AND REWARDS.—The cost of the four Hamburg raids was 88 aircraft, but many men were rescued from the North Sea and many more will be alive as prisoners of war. The gain is a first-class military target with all its productive capacity in U-boats, aircraft and munitions of war laid waste—far more economically than the German destruction of Stalingrad.

As there was no aerial bombing before 1914-18, the only comparisons must be made with artillery. The Battle of Waterloo was lost and won for an exchange of 37 tons of shells. The Boer War absorbed 2,800 tons—a whole war fought on little more than one nights bomb load of to-day! The Battle of Jutland took less than 2,000 tons. Some of the artillery duels in the last war involved 1,400 tons a day. At the Battle of El Alamein our artillery fired 1,000 tons an hour for several hours.

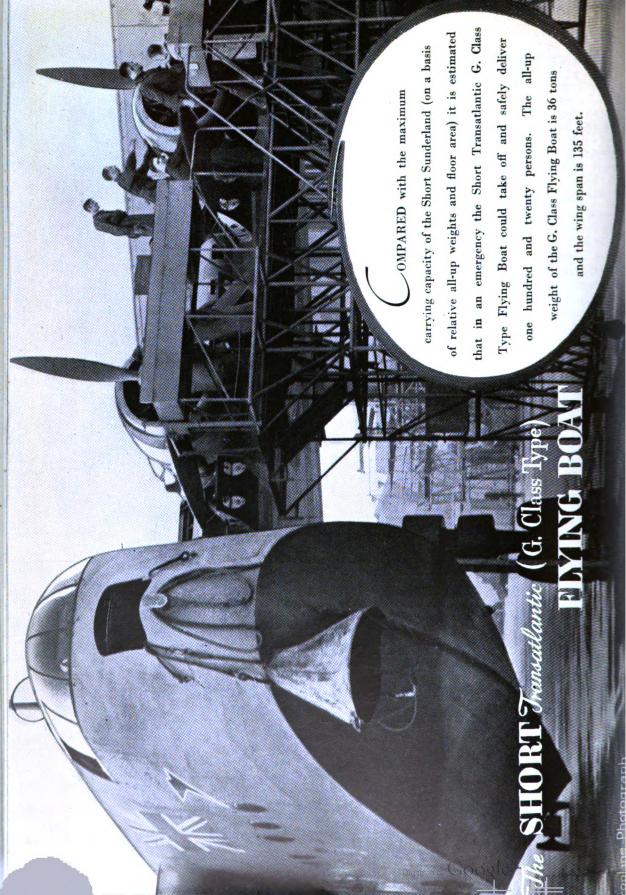
In the last war the lives of thousands of men were lost to gain a few miles of Flanders mud that might have little or no effect upon the course of the war. The destruction by the R.A.F. of vital parts of the German war machine by comparatively inexpensive bombing raids must have far more effect than those bloody battles, must help to shorten the war and must help to save countless lives and treasure.

### R.A.F. BENEVOLENT FUND

# R.A.F. QUARTERLY DONATIONS REACH FIVE HUNDRED POUNDS

The amount donated by the R.A.F. QUARTERLY to the above fund for the quarter ended 1st September is given below.

R.A.F. Quarterly donations for September, 1943, Quarter	f s. d. 23 2 6
Brought forward	476 17 6
Grand Total	5co o o



### THE AMERICAN BOMBING EFFORT

UNITED STATES EIGHTH AIR FORCE STRIKES HARD IN EUROPE.

I.-Policy, Purpose, Plan.

From their bases in Great Britain the heavy bombers of the United States Eighth Army Air Force have now been engaged for twelve months (since August 17th, 1942) in attacking targets in Germany and occupied territory. Operating as a separate entity, their effort is nevertheless closely integrated with that of the Royal Air Force and there is no question of the Americans conducting an air war of their own in Europe. There never has been; there is ample evidence that the U.S.A.A.F. raids dovetail into the broad strategic plan of R.A.F. Bomber Command. "It is the settled policy of our two staffs and war-making authorities," said Mr. Churchill, dealing with this subject before Congress on May 19th, "to make it impossible for Germany to carry on any form of war industry on a large or concentrated scale, either in Germany, Italy or in the enemy occupied countries. Wherever those centres exist or are developed they will be destroyed and the munitions populations will be dispersed. . . . This process will continue ceaselessly with ever increasing weight and intensity until the German and Italian peoples abandon or destroy the monstrous tyrannies which they have incubated and reared in their midst."

Complete agreement on policy was further emphasized by General Ira C. Eaker, Chief of the U.S. Army Air Force in Europe, when in a recent statement he spoke of the close co-operation between the two air forces. General Eaker said: "The Eighth Air Force has been supported and aided in every possible and conceivable way by the Royal Air Force, the Air Ministry and by all of the many agencies of Government in this island. We have asked for nothing which has not been freely given when available. We are in complete accord on strategic policy and on operational doctrines. Our two

bomber offensives are really one combined bomber offensive.'

An agreed policy, a single purpose and a cut-and-dried operational plan: This is the essence of the contract. The plan is that the American heavies shall operate by day, performing the task, high-altitude precision bombing, for which they were designed. There has been a good deal of controversy about the value of heavy bombing by day and many doubters as to its effectiveness. The Americans, strangers in a strange air, operating in conditions very different from those prevailing in their own country, set out to prove their case. When they arrived in Britain last summer the country had good reason to believe in night bombing. The Luftwaffe had succeeded by night and had failed by day; the Royal Air Force had, by last August, given some telling demonstrations of the devastating weight of the new saturation raids, including three by a thousand planes.

What the Americans had to prove was that, given the right conditions, they could hit the target from the sub-stratosphere (or 20,000 to 25,000 ft., which is their bombing height) and that they could defend themselves against enemy fighters well enough to keep losses within reasonable bounds. Well, by the spring of this year they had given the proof, and each succeeding month has added to it. The Fortresses and Liberators are doing the job for which they were built, and doing it magnificently. Each month the Eighth Air Force shows a higher percentage of aircraft over the target and a higher percentage of bombs within the target area, and there is a considerable increase in the size of the effort month by month—by between 15 and 30 per cent. Between March and June the size of the effort was more than doubled and General Eaker recently predicted that between June and October the force would be doubled again.

The value of the American raids cannot be reckoned only in terms of destruction to war potential, though this is naturally the paramount aim. Their importance to the Allied cause in all theatres lies also in the demands which they make upon the German defences. Being faced with a day offensive of some considerable weight as well as a night offensive, the Germans are forced to deal with a situation which might otherwise not press so hard upon them and would free men and machines for other fronts. For instance, the Luftwaffe must now maintain a large force of day fighters in France and

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Western and North-Western Germany to meet the American attacks in addition to the many squadrons of night-fighters that guard the approaches to Western and North-Western Germany. And this day force is being severely knocked about by the bombers whose great success in the air battles is one of the decisive factors in the weakening of the Luftwaffe. One of the most marked indications of the seriousness with which the Germans view the American raids is the determination with which large forces of their fighters attack the bombers. This intensity of effort is particularly noted over North-West Germany, where many attacks have been made on U-boat bases. It has been authoritatively estimated that nearly sixty per cent. of the Luftwaffe fighter force is pinned down in the West by the Allied raids.

Through the constant fear of round-the-clock bombing the German defences are kept in a permanent state of alert. Gunners who have perhaps spent the night vainly trying to smash a concentration of R.A.F. heavies may have to deal with a mass raid by Fortresses only a few hours later. The A.R.P. and the fire services will have little peace, too, and they will have to be maintained at full strength. Altogether it is estimated that the bombing ties down more than a million men in the West in defence work, many hundreds of whom might otherwise be made good use of in the factories.

. . .

In recent months we have had two clear illustrations of how the two forces work together in the execution of the strategical policy. As is well known, the U-boat construction yards on the Baltic coast and the bases on the French Atlantic coast have always ranked high in the list of priority targets of the R.A.F., the Baltic ports being among the most heavily raided places in Germany. These attacks had to go on if the Battle of the Atlantic was to be won, but at the same time the R.A.F. had another battle on hand—the Battle of the Ruhr. It was then that the value of the American effort was most strongly emphasized; they undertook to attend to the U-boat yards and bases. Since the end of March (with the exception of the joint blitz on Hamburg in July) these targets have been attacked solely by the Eighth Air Force, and through their splendid work the R.A.F. was free to concentrate its great strength on the devastation of the Ruhr.

A second example of the team work is in the widespread assault on transport and communications. This takes a number of forms—heavy night raids on centres of communication in Germany, raids on locomotive factories, marshalling yards, power stations, and the familiar train-busting exploits of Fighter Command. It is in the attacks on the factories and yards that the Americans play a big part; among their many raids have been two heavy ones on the Five-Lille works which produced some 150 locomotives a year. In addition, they are carrying out a two-dimensional war against the Luftwaffe by shooting down its fighters in combat and by striking at aircraft factories and airfields in occupied territory. There is no gainsaying the immense value of the all-round effort of the Eighth Air Force's heavy bombers. And, as we have said, that effort is always increasing. In appearance it is apt to be deceptive, for the public, having heard a good deal about round-the-clock bombing, is sometimes puzzled by the lulls which occur from time to time. It is not always understood, as General Eaker recently pointed out, that an air force that launches ten major assaults in a month with the same aircraft and crews is doing an outstanding job. Furthermore, the American bombers require the right sort of weather permitting accurate bombing from 20,000 feet if they are to achieve maximum results, and they prefer, when possible, to wait for that kind of weather. But the weather is not nearly such a limiting factor as is the supply of replacement crews and aircraft, for unlike the R.A.F. the Eighth Air Force has not its factories on the doorstep. They are three thousand miles away and separated by a hazardous sea passage. So the Eighth watches its opportunities, standing firm by the one consideration: how and when can we deal the enemy the severest blow and take the least loss ourselves?

"We will never (says General Eaker) operate at a rate which will bring about losses faster than we can replace until some critical situation arises requiring an all-out effort such as landing on the Continent. Then we will throw in all we have hour after hour, day after day if necessary, until it is used up to support an over-all successful land.

sea and air battle." So far their losses have not been excessive. Up to the end of July they were under 4 per cent. There has been no noticeable rise, and General Eaker believes that the loss curve goes down as the number of planes used goes up. That is because the enemy throws everything he has at whatever is sent over and his ammunition is limited, so five hundred aircraft will absorb the same blow as would one hundred.

### II.—Action and Achievement.

Before we discuss the Eighth Air Force operations in detail, a word about the aircraft. The mainstay of the offensive is the Boeing B17, known as the Flying Fortress, a four-motor monoplane powered by 1,200 h.p. 14-cylinder Wright double row Cyclone engines. The Fortress II, or B17E and B17F, now in use, contains several improvements on the Fortress I, notably in armament, the latest version having a maximum of thirteen guns against seven. Maximum ceiling is 40,000 ft., but bombing is generally carried out at 20,000 to 25,000, or between four and five miles up. speed is 300 m.p.h. and the range is probably around 2,000 miles. The crew numbers nine or ten. The bomb load of the Fortress has not been disclosed in precise figures but it is assumed to be between two and three tons at maximum, and naturally varies according to the target's distance from base. An idea of the average bomb load can be gained from figures for May given by General Eaker, namely, 2,800 tons dropped in 1,600 sorties, or one and three-quarter tons per sortie. Some thoughtless and harmful comparisons have been made between the bomb loads of the Fortress and the British heavies, whose paper capacity is a maximum of eight tons, whereas in actual fact the average tonnage per sortie for an R.A.F. heavy bomber is about two and a half tons (we know, for instance, that 400 aircraft dropped 1,000 tons on Essen). The Fortresses capacity is less for the simple reason that they are designed as day bombers which must also fight and fly unescorted into the most strongly defended areas. Consequently bomb load is sacrified to armament and armour, the latter totalling about 8 per cent. of the aircraft's loaded weight. In time we may see the bomb load stepped up without any loss of defensive power.

The second string in the Eighth's stable is the Consolidated Liberator (B24), a powerful long-range monoplane, driven by four 1,200 h.p. Pratt and Whitney twin wasp radial engines. Its top speed is 335 m.p.h. and it can cruise 3,000 miles at 230 m.p.h. The latest version, the Liberator III (B24D), has fourteen guns and a crew of eight or nine. Its bomb load is given, unofficially, as three tons. The demands on this aircraft are great and this probably explains why it is not very prominent in the European theatre U.S. Bomber Command. It is the R.A.F.'s very long range aircraft in the Battle of the Atlantic; it is the heavy bomber of the Middle East Command, and it is doing a similar job in the Pacific. The R.A.F.'s Ferry Command also uses many

Liberators.

The American heavy bomber effort can be divided into three phases: (1) August to December, 1942, when attacks were confined to fringe targets in occupied territory; (2) January to March, 1943, when the attack was extended to Germany; and (3) April to the present, during which the lessons of the previous months have been fully applied and the attack developed and enlarged in every possible way. This phase continues.

Phase I, which began with the attack on Rouen on August 17th, opened quietly. Operations were carried out on two days in that month and on three days in September, a total of ten targets being attacked. October was notable for the first big Allied operation. On the 9th a force of one hundred Fortresses and Liberators, supported by some five hundred R.A.F. fighters, attacked the Fives-Lille locomotive works at Lille. Only four bombers were lost, and thirty-eight fighters were shot down. November was encouraging because in this winter month, when conditions for high-level bombing might be expected to be less favourable, the heavies had their busiest time to date, operating on six days against ten targets. Practically all these raids were on the Atlantic submarine bases of Brest, St. Nazaire, La Pallice and Lorient—at a time, be it noted, when the R.A.F. was devoting its main effort to Northern Italy in support of the Eighth Army's campaign in Libya which began at the end of October. Again, in December there

were some big Allied fighter and bomber operations, and on three days there were more than three hundred fighters out with the bombers giving cover and making diversionary sweeps. There was good reason to be satisfied with the first five months' work. A great deal of experience in bombing and gunnery had been gained by the crews, whose success had given them confidence for the tougher jobs ahead. In all, thirty-one targets had been attacked for a loss of only thirty-three machines. The total of enemy fighters destroyed was in the neighbourhood of two hundred.

One can imagine that the crews were anxious to show their paces and shake off their fighter escorts. They had their chance on January 27th—the first birthday of the Eighth Air Force very properly celebrated by their first raid on Germany. The target was Wilhelmshaven. Unescorted, the bombers attacked in ideal conditions and only three were lost. Twenty-two German fighters were shot down. There was plenty of cloud cover there and back and Fortress crews reported that Wilhelmshaven was not such a tough target as St. Nazaire. The official account spoke of the surprise element in the raid and the Germans may well have been surprised to receive a heavy attack in daylight. Air Marshal Sir Arthur Harris, sending the Eighth Air Force the congratulations of the R.A.F. Bomber Command, wrote: "This well planned and gallantly executed operation opens a campaign the Germans have long dreaded. . . . To Bomber Command it is concrete and most welcome proof that we shall no longer be alone in carrying the war to German soil." In February, Wilhelmshaven was again bombed, and on another day targets in North-West Germany. In these two days only twelve planes were lost.

In March the turning point was reached. It was the best month to date for bombing results, more than 1,600 tons being dropped. Nineteen bombers were lost and 142 enemy fighters shot down. The high-light was the raid on the U-boat yards at Vegesack, on the River Weser, a few miles north of Bremen. Involving a round trip of about six hundred miles, the biggest force of American heavies to fly into Germany made their deepest penetration to date and dropped their heaviest load. "Vegesack was an American triumph," said an R.A.F. commentator, and General Eaker described the raid as the "successful conclusion to long months of experimentation in day-time high-level, precision bombing." The case for such bombing was regarded as proved. Many messages of congratulation were received, including one from Mr. Churchill, which ran: "All my compliments to you and your officers and men on your brilliant exploit of yesterday, the effectiveness of which the photographs already reveal."

What the photographs revealed was later described by the same R.A.F. commentator. Of the fifteen U-boat hulls on the slips at the time seven were almost certainly severely damaged, while six others appeared to have sustained slight damage. These fifteen U-boats were in different stages of construction. Of the seven severely damaged one was ready for immediate launching, two might have been expected to be launched about the middle of May, two in mid-June and one early in July. The seventh was in embryo. Apart from this success experts who studied the photographs considered that damage to installations was sufficient to reduce very considerably the working efficiency of the yards and to cause complete dislocation for a while. Further, they estimated that the yards would be of no substantial importance to German submarine construction for several months. The R.A.F. commentator said the attack was particularly gratifying to the British Air Ministry and it tended to confirm their view that there is a great deal to be said for attacking the submarine at its place of birth.

\* \* \*

It is obvious that the Vegesack raid was of great importance to the Americans and to the Allied cause, and the evidence of results is a first-class illustration of what can be achieved by a well-delivered precision attack from a height of five miles. Two other raids were made against Germany in March—Hamm and Wilhelmshaven—and altogether thirteen targets were attacked. It was good going and Phase 2 ended with a healthy eight months' balance sheet: 400 enemy fighters destroyed, 90 American planes lost. Tonnage dropped: more than 5,000.

With mounting strength and increasing skill the offensive was pressed home in the

months that followed. In April, May and June the use of increasing numbers of aircraft facilitated the development of two-, three- and even four-pronged operations. On 14th May the heavies struck at Kiel, Antwerp and Courtrai; on the 15th launched their heaviest raid to date, the target being Emden; on the 17th struck simultaneously at Bordeaux, Lorient and Koroman, the Atlantic coast U-boat bases; on the 29th at La Pallice, St. Nazaire and Rennes with a force which eclipsed that used against Emden. May was a big month and a successful one. Losses were 72 bombers, but the percentage remained under five. The enemy lost 350 fighters, so in combat the Americans had a five to one victory.

On 22nd June the Americans took a hand in the Battle of the Ruhr, which in this month reached its climax with some devastating assaults by the R.A.F. The Americans went to Huls, about twenty-five miles south-west of Munster, to bomb a synthetic rubber factory which supplied a large percentage of Germany's requirements. This, their first penetration into the Ruhr, was an outstanding military operation conducted with great daring and skill. The opposition was well known: literally thousands of guns and many squadrons of fighters. Nevertheless, the Fortresses sailed in, found their heavily camouflaged target, and bombed with great effect. Crews were enthusiastic. The factory took a tremendous beating, they said. Some time later a spokesman of the Ministry of Economic Warfare, confirmed their views, declaring the factory would be out of action for some time. The force employed was one of the largest ever sent out, and the tonnage dropped was the heaviest. Strong formations of enemy fighters tried to stem the progress to the target but the sky seemed full of Fortresses and the attackers were The day's losses were twenty bombers. not very determined.

There were a number of other successful attacks in June, notably on St. Nazaire, which was described officially as "a perfect example of high-altitude precision bombing. From approximately five miles up bombs from almost every plane were bunched across the aiming point." And at Wilhelmshaven, "severe damage to the harbour area"; at Bremen, "extensive damage, dozen hits on and around Atlas Werke." Of earlier attacks official reports said that at Lorient the "bombing pattern was close and is revealed as unusually effective against this type of heavily protected target." In another raid on Bremen more than half the buildings comprising the Focke-Wulf aircraft factory were destroyed or damaged. At Bordeaux, one of the most successful raids, many hits were registered on ship-building yards and engineering shops, aircraft assembly plant and submarine pens.

In June losses continued their upward trend, 82 machines being reported missing, but with larger forces employed the percentage curve did not rise. A total of 271 fighters were reported destroyed by the bombers and the tonnage dropped was between

two and three thousand. Operations were restricted by weather during the first three weeks of July but there

was a successful three-pronged assault on targets in France on Independence Day, also the anniversary of the Eighth's first raid on Europe (by Bostons on airfields in occupied territory). The aircraft depot at Nantes, aero works at Le Mans and the U-boat yards at La Pallice were the targets this year and good results were achieved on all three. Bombing was also possible on the 14th, when important aircraft targets were attacked at Le Bourget and Villacoublay, on the outskirts of Paris, and at Amiens-Glisy. Results

were again satisfactory.

The weather lifted in the last week of the month and the Allies unloosed the greatest assault in the history of aerial bombardment. Against Hamburg they gave the first demonstration of what was literally round-the-clock bombing, the American heavies following up the R.A.F.'s massive night raids with two daylight attacks on the shipyards. For their own part the Americans had their most intense spell of raiding since they began to operate. The range and scale of operations were greater than in any previous month. Their targets were shipyards, aircraft factories and other industrial plant. They flew almost to the edge of the Arctic Circle to bomb targets at Trondheim and Heroya and to the east as far as Oschersleben, only ninety miles from Berlin, to attack a Focke-Wulf aircraft works. Located in a small village, this was one of the most difficult targets the Fortresses have had. Bombing results were reported to be good. "Tremendous damage" was reported to a rubber factory at Hanover—an attack dovetailing into that on the synthetic rubber plant at Huls, in June. At Kassel the Fiesler aircraft works were heavily bombed and at Warnemunde much damage was inflicted on the Focke-Wulf factory. Among the fifteen targets attacked in the last eight days of the month were Kiel, Wustrow and Wilhelmshaven.

During the month 108 Fortresses were lost—the highest loss so far recorded—but the scale of effort was such that the percentage remained under four. Some terrific air battles were fought in the course of the long flights into Germany and the gunners had their best month, the bag being at least 500 enemy fighters. A total of more than 3,600 tons were dropped. All round, July was a "new high" for the Eighth Air Force heavy bombers.

The balance sheet for the first twelve months of heavy bomber operations reads as follows:—

Aircraft lost: 380.

Enemy fighters destroyed in combat: 1,660.

Number of targets attacked: 108. Tonnage dropped: more than 14,600.

These figures have been compiled from communiques and official statements and are

subject to revision, which may show even better results.

A word may be said here on the German reaction to the American bombing. For Several weeks they were loathe to admit that the Americans were operating from Britain. On a number of occasions the raiders were described as "British multi-engined machines." When it was no longer possible to disguise the facts the Germans tried to work up a "hate" in occupied territory by issuing exaggerated accounts of the casualties suffered by the civilian population in the vicinity of targets. It is inevitable that some such casualties will be suffered, but the Americans are extremely painstaking in their attempts to avoid them. If conditions over the target are bad they prefer, in accordance with their declared policy, to bring their bombs back rather than risk the lives of these More recently German propaganda has taken a stranger twist, sometimes ascribing R.A.F. night attacks to the Americans. The idea of this may be to relieve themselves of the embarrassment of not making heavy reprisal raids by implying that distance makes retaliation against the United States impossible.

### III.—Fire Power and Combat.

The British public, accustomed to the modest claims of the R.A.F., has been surprised by the numbers of enemy fighters destroyed by the American heavy bombers. It is merely recording a fact to say that in some quarters there has been a good deal of scepticism. It is not that the good faith of the American crews is in question-this has been emphasized by all the controversialists. What is questioned is whether in the heat of a battle fought at 20,000 ft. or higher between scores of aircraft there is time or opportunity to make certain of the fate of every enemy plane hit. The difficulties are thoroughly appreciated by the American intelligence officers and one can sympathize with these men in their onerous job. They do not allow a claim of a "kill" unless it is corroborated by at least one other person. After a big operation they may have to interrogate more than a thousand men. The complicated process of checking and counter-checking can be imagined and usually two or three days elapse between a major

operation and the announcement of claims. The system of checking claims used by the U.S.A.A.F. is substantially the same as the R.A.F's. It is a combination of four circumstances, denoting the destruction

of an enemy aircraft, namely:

It must be seen to hit the ground or sea.

2. It must be seen to blow up in mid-air or disintegrate as when a tail or wing falls off.

It must be seen descending completely enveloped in flames (smoke or licking flames from the engine is not sufficient evidence).

The pilot must be seen to bale out.

Working on these lines, the Americans must produce a high degree of accuracy. and it is manifestly unfair, not to say mischievous, to cast doubts upon their claims Such a method reduces the chances of overclaiming to a minimum and indeed tendtowards error in the opposite direction. One must always allow for the human element. In a big engagement there may be 800 gunners in action in a matter of seconds. We know the difficulties in such conditions from our own experience in major battles. The R.A.F. probably errs on the side of under-statement. At Dieppe, for instance, 93 enemy aircraft were claimed, but high R.A.F. officers have since given German losses on that occasion as almost double that figure.

. .

In an article such as this, which is an attempt at a brief history and an analysis of the American heavy bomber effort, the question of claims cannot be ignored. All reasonable beings wish to see an end to the bickering on this subject (it is certainly diminishing) and in place of doubt a growing realization of the immense value of the lessons to be learned in bomber defence from the American success. There is everything to be gained from discussing the subject on that level; nothing to be gained and much to be lost in making sour and ill-informed comparisons. If the British heavy bombers carried ½-inch guns instead of .303 and went in for mass day raiding, their claims might rival the Americans. (N.B.: The Lancaster's maximum gun h.p. against one target is 616, the Fortresses' 2,072.)

The total of more than 1,600 enemy aircraft claimed by the American heavies in twelve months includes a number of very big scores. The highest is 85 in the Wilhelmshaven and Cuxhaven raid on 11th June, while others have been: 74, Emden, 21st May; 65, Kiel and Bremen, 13th June; 63, Bremen, 17th April; 52, Vegesack, 18th March; 48, Renault, Paris, 4th April. In three raids, 13th, 14th and 15th May a total of 121

were shot down.

In the fourth year of war it does not require much imagination to appreciate the intensity of these air battles. Fought at a speed of between 500 and 600 m.p.h., they involve an expenditure of thousands of rounds of ammunition a minute. (The estimate is 6,000 rounds per aircraft shot down.) The Germans are determined attackers; sometimes, the crews say, to the point of recklessness and desperation. From the gunners one hears such comments as this: "You've heard of throwing everything in the kitchen sink. Well, they threw in the kitchen sink to-day and the cook stove as well." This after a raid on North-West Germany in which every type of German fighter, day and night, had attacked, Junkers 88's and Me. 110's among them. In an account of the Oschersleben raid on 28th July, Fortress crews described how enemy fighters picked them up at the coast and hung on for 100 miles. For seventy miles there was some of the fiercest fighting the crews had even seen.

. . .

There are two main reasons for the American successes: the ½-inch machine gun (0.50) and the tight formation. A formation of Fortresses carries an average of twelve and a half guns per aircraft, the number on each plane varying between eleven and thirteen. The variable numbers are in the nose, where there are either two, three or four hand-operated guns, one of them usually being a 0.30, the only one of this calibre on board. The remaining guns are positioned as follows: two in the top turret behind the pilot's cockpit, one in the radio hatch (a little further back), one in each waist position, two on the tail and two in the ball or under-turret, The top and under-turrets are fitted with the Sperry Computing Gunsight, a semi-automatic predictor which in theory reduces the path of the bullet from the gun muzzle to the target to a straight line.

There seems to be general agreement among the experts that in the Browning \(\frac{1}{4}\)-inch machine gun the United States has produced the finest bomber armament for present-day mountings. Its range in the latest versions varies from 700 to 1,250 yards, and the rate of fire from 650 to 800 rounds per minute. Muzzle horse-power is between 296 and 327. The 13-gun Fortress, as described above, has a total gun horse-power of 3,629. Against one target (maximum, seven guns) the Fortress guns develop 2,072 h.p., a punch of 13,000 lb. per projectile and a rate of 87.5 strikes per second. Thus armed, the Fortress can focus more fire power on one target than any other bomber can bring to bear in all. This fire power also exceeds that of any enemy fighter except the Me. 109G, which, with five guns (three Mauser 20 mm. cannon and two M.G. 17 rifle-calibre) musters 2,238 gun h.p. The F.W. 190 A.3's six guns develop only 1,752 h.p.

How to make the most effective use of this fire power is a problem which finds solution in the tight formation, which is also designed to reduce vulnerability to a minimum. These formations, in a sense both offensive and defensive in character, are not standarized; they vary according to the experience of Group Commanders and their crews. One type which has proved extremely effective was recently disclosed. In appearance it resembles a horizontal pyramid with the "lead ship"—a vitally important unit—at the apex. The basic unit is the squadron of seven aircraft. There are two V formations of three aircraft each stepped down to the left. The second V flies below and behind the first. Behind and below this second V flies the seventh aircraft, whose function is that of replacement. For a heavy raid three squadrons are combined in formations of twenty-one aircraft. The Lead and the Low squadrons follow the principle outlined above, but the High squadron is stepped upwards to the left. As a rule the Low and High squadrons fly on the left and right of the Lead respectively, with the Lead a little ahead. A formation of this sort will muster some 260 guns. One hundred Fortresses (not an unusual number for a raid) would be defended by 1,250 machine guns with a minimum joint fire power of 800,000 rounds per minute or, as someone reckoned recently, an outpouring per minute of over forty tons of lead.

Published reports of combats make frequent reference to head-on attacks by enemy fighters and it is estimated that some 70 per cent. of the attacks are now made in this way, the enemy apparently preferring to face the hand-operated nose guns rather than the fiercer fire frem the turret guns. One method of head-on attack adopted by the Germans is for between thirty and forty fighters to form up in line astern on each flank of the Fortresses just out of the gunners' range. Flying in the same direction as the bombers, the left-hand line of fighters will draw ahead and then turn, coming in diagonally. Opening fire at about 400 yards, they roll, still firing, and break off below the bombers, exposing only their armoured undersides to the gunners. When the left line has attacked, those on the right follow. Thus a continuous engagement is maintained.

## THE PORTENTOUS ROLE OF AIR COMMUNICATIONS

COMING EVENTS THAT CAST THEIR SHADOWS BEFORE.

By AIR COMMODORE E. L. HOWARD-WILLIAMS ("The Daily Telegraph" Air Correspondent.)

AN OUTSTANDING EXAMPLE WE APPLAUD.

MR. WINSTON CHURCHILL and President Roosevelt's assignation at Casablanca floodlit air communications as a development which has probably affected the whole course of human destiny more than any other. Its unpredictable influence on the diplomacy and strategy with which this Second World War has been planned and fought, merits observance.

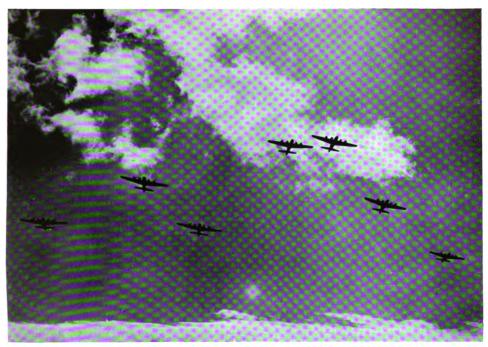
Where on their joint occasions Hitler and Mussolini use an armoured train, our

great leaders take to the air like drakes to water.

Overwhelming in their import as these two converging flights undoubtedly were, there are those who contend that when Mr. Winston Churchill flew 14,000 miles in "Commando" to visit Premier Stalin in Moscow, an even greater diplomatic feat was accomplished. Almost in extremis the Russians were then bleeding to death in their rivers and plains, in a desperately stubborn retreat which nearly cost them their all. Distant promises in their dire distress must have sounded a little thin until Joseph Stalin heard at first hand of the reasons which stayed our eager hands.

His Majesty's more recent visit by air to his vectorious African armies created a royal milestone in the affairs of men, unrivalled in the dignity and scope of its purpose.

Great occasions all, these gave us superlative examples of the use of air communications to further the progress of the war on the highest possible and most profitable



FLYING FORTRESSES.

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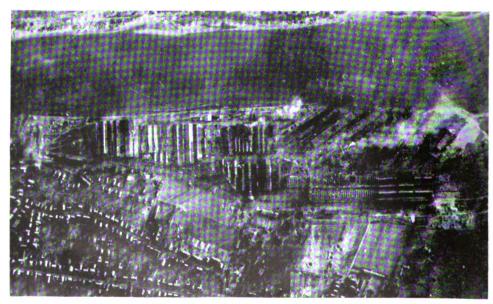


[Crown Copyright reserved AN ATTACK BY FORTRESSES ON THE U-BOAT BASE AT ST. NAZAIRE.



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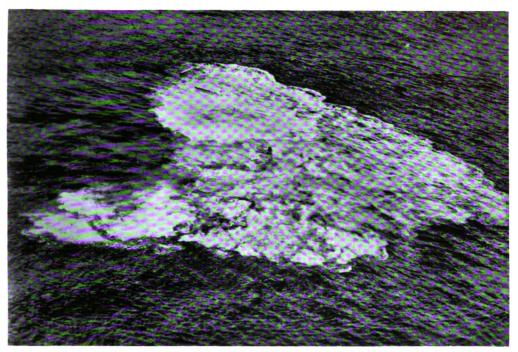
TWO FORTRESSES LEAVING LORIENT—ENVELOPED IN SMOKE FROM BOMB BURSTS—AFTER ONE OF THE MANY SUCCESSFUL RAIDS ON THIS IMPORTANT U-BOAT BASE.



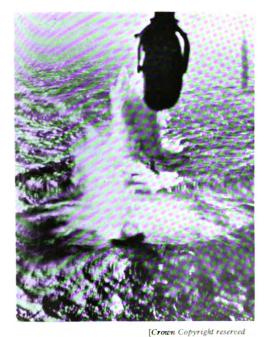
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DEVASTATION WROUGHT ON THE GERMAN U-BOAT YARDS AT VEGESACK, IN A RAID BY FORTRESSES.

In the words of Mr. Churchill, "this was a brilliant exploit."



[Crown Copyright reserved THE TELL-TALE OIL AND WRECKAGE SPREADING OVER THE SPOT WHERE A U-BOAT WAS LAST SEEN.



DEPTH CHARGES FROM A COASTAL COMMAND HALIFAX STRADDLING A U-BOAT.



DEPTH CHARGES FROM A COASTAL COMMAND SUNDERLAND STRADDLING A U-BOAT.



PANTELLARIA.

A R.A.F. Boston bombing the Italian stronghold.



 ${\bf PANTELLARIA}.$  Devastation in the harbour caused by Allied bombing.

plane—that between its leaders. Whence I invite you to consider it true to say that few flights in all history surpass these in their achievement.

Communication sorties of great importance to government include those which took Mr. Chamberlain to Munich. General Smuts and other Commonwealth leaders have used air transport on many occasions to cover the otherwise long distances which alone separate their Dominions from the Mother Country. Kings and princes, premiers and statesmen, ambassadors and diplomats, and the heads of the fighting Services have followed suit. The late General Sikorski lost his life in the rapid pursuit of state business.

In a sense they set the pace. Following the high-level example, a vast array of air, military, naval and other advisers has also been enabled with their contacts to implement the decisions taken by their masters, in a manner and method which would otherwise be denied them.

Of all this flying, however, it is Mr. Winston Churchill's tens of thousands of miles over so much of the world, on so many missions, which have most captured the imagination and pride of the common man and woman. Behind his leadership lies the less spectacular example of his predecessors.

What have air communications achieved?

### WHAT AIR COMMUNICATIONS HAVE DONE FOR US.

Briefly air communications to a vast extent have overcome the disadvantage of exterior lines, in both war and peace; witness our campaigns in North Africa and Sicily in particular. The gap is bridged in time, within the space of a few years to achieve a truly remarkable result.

Whence it would be idle not to stress how the presence of national leaders in overseas theatres of war instils confidence in the ministerial executive which is directing the whole war effort. It encourages officers and men alike. The personal contacts which His Majesty the King and our Prime Minister have renewed in North Africa, for instance, can but have given our Service leaders and those they lead that measure of support which might, under certain circumstances, make all the difference between success and failure. Allied Commanders-in-Chief also benefit from these intimate associations.

Another advantage, and one of the greatest moment, is that those who govern are brought into swift contact with distant events shortly before and soon after they occur. At first hand they learn something of the problems and their solutions, of the pressing needs and aspirations of those whose job it is to produce results. As a consequence, on their return to the seat of government they are better able to implement their decisions. In other words the man on the spot has, through air communications, a far better opportunity to do his job as he knows it should be done, because those at home at whose command the all-important strategic decisions lie, are better informed.

Further, diplomacy can now aspire to higher levels through the speed with which it can be conducted. Plans can be made and modified where in the past they perforce had to be content with their imperfections. What is perhaps more important, they can be more expeditiously handled, operating with a proper regard for the often all powerful time factor.

Another important aspect in which air transport now takes outstanding part, lies in its ability to bring together those who fall apart. When difficulties and misunderstandings occur, more often than not they do so through ignorance. By which I mean not sheer lack of knowledge of the problem so much as lack of comprehension of the other man's point of view; of the overwhelming factors which may force him to take a certain stand no matter what may arise. Timely intervention in the early stage of such developments, and in a political world they can be many and serious, can often solve problems before they rear their heads in ugly shape.

Ahead looms a world of promise we are perhaps well advised to probe a little more deeply.

### How Time Affects the Issue.

It is reasonable to assume a post-war era in which air communications will span the world at a cruising speed of some 250 m.p.h., on a conservative estimate. Responsible authorities visualize a period of four days for a fast direct route between England. Egypt, India, Australia and Canada.

Automatically that will bring Canada and Egypt and India where Scotland was yesteryear. To all intents and purposes Australia and New Zealand will then be where the Orkneys are. The world, which once lay months and therefore a lifeline away.

will be at everyone's feet.

The significance of which rests, I suggest, not merely in the facility or in the proximity of the world's common round and daily task, but in the potential power it gives our rulers and leaders in their business of ruling and leading.

It is a truism to add that what wireless did for the early half of the century, air

communications may well amplify in the latter half.

Instance, until recent years the west coast of North America was two days away from the east coast, yet they were joined by one Government. The affairs of both were served by one navy and one army. To attend to their State affairs, representatives flowed to and fro from west to east and back like a tide that turned on events.

Therein you may see the post-war world, "all stuck together" as Charles Austin used to say. The pace has been set for peace. For the Prime Minister of Australia to come to England, and vice versa, will be no more than for the State of Washington

to visit Washington.

In the reality of to-morrow, world and commonwealth problems and their solutions will thus be capable of resolution round the conference table as part of daily routine. In brief, important people will use air transports as we now use trains.

Which invites us to carry the prospect a stage further.

### A Unifying Influence is Likely to Develop.

You will recall that a few centuries ago England herself was divided into shires which were exceedingly jealous of each other, and which were not bound together by strong links. It was not until comparatively modern times that those shires were

welded into this England. Road communications were largely responsible.

Contact with each other in matters of business slowly dissipated the reasons for strain which formerly existed between the shires. Neighbouring folk inter-married. They had dealings and family ties with each other. The last people who wanted strife were the middle classes, the tradesmen, and the artisans themselves, who were all too busy making themselves and therefore everyone else comfortable. In other words, transport on the ground was responsible for binding England together and creating order out of the military and civil chaos which previously presided.

The links were the journeymen, the travellers, those who used the roads. They were the people who eventually made war impossible between the shires. They carried the news and goods of all sects and parties. Their practical common sense made the

thought of war intolerable and politics a matter for early practice.

Harmony in living became a practical necessity. For internal security, police soon replaced soldiers. The nobles and knights came to town. The common enemy became lawlessness, self-indulgence, and the lazy and good-for-nothing. Honest men and women were no longer the pristine sport of their rapacious neighbours.

All this arose in spite of the fact that it was easier for the shires to reach each other along the roads they built than ever before. Means of transport thus brought peace over the region of their influence. For England the small war, like Homer's Epos,

did not conclude—it ceased.

Where pride of shire once held sway, in time the nation itself became more conscious of its national unity, through a "league of shires" or "parliament." Red roses and white roses joined cornflowers and bluebells, shamrock and keeks, in almost every garden of England, Scotland, Ireland and Wales.

In the nineteenth century canals and railroads strengthened our whole estate.

Our command of sea communications and our colonies developed from these beginnings. There was to follow a fabulous prosperity. Next came that strong bond of unity which we now know as the Commonwealth of Nations, the greatest experiment in the story of the world. The Royal Navy and the Mercantile Marine, plus our overseas trade, made this prosperity and unity something of the utmost consequence, for much the same reasons that our internal communications made Great Britain a successful and homogeneous whole.

Wherefore it can be supposed that air communications may eventually lead to unity throughout the world, in much the same way that roads led to the federation of the

shires, and the sea lanes led to the Commonwealth of Nations.

Whence it is arguable, reading the lessons of the past, that it is at least possible that the mutual sentiment which already strongly exists among airmen, and always has existed, may eventually blaze itself into a trail of good fellowship encircling both hemispheres. The very flights of which we read to-day are pointing this prospect in no mean manner.

### INTERNATIONAL GOODWILL THROUGH AIR TRAVEL.

Air travellers and air-minded folk all over the world certainly have much in common. They are usually intelligent and have imagination. Ever ready with their friendship they have too much at heart, and too much at stake, to foster other than kindly and courteous feelings about those whom they meet on their journeys. When this job is done will they and their friends have time for war mongering? I suggest not. Through the exchange of ideas and trade between nations by means of the air, we shall one day be given the chance to abandon the cult of war for ever. Particularly as we know its ultimate aim to be a means to an end which can only result to the mutual disadvantage of all mankind, and something we have for years deplored as barbaric among primitive tribes.

As I see it, there is a real chance that airmen, like the journeymen of England a few centuries ago, and like the sailormen of our Empire, by taking their trade and pleasure all over the world, in the post-war years may quietly do what every argument

about disarmament and peace have not yet achieved.

In other words, when this war is over air communications may draw a broad blue

band round the world in an honest attempt to solve its greater problems.

Air-minded men and women are sub-consciously helping to assimilate the idea that the third dimension and the new medium of travel may eventually bring peace to the world. One has only to contemplate the present to realize that the thought of another war in the future is incredible. I suggest that it should be made impossible.

Let us be prepared with a stout heart, a powerful air force, a strong army and navy, to deter neighbours from attacking us. While we allow our ultimate aim to be the right kind of peace, we clearly dare not neglect our defence. At the same time let mankind carefully consider who has the most to lose by modern war. The answer is, of course, mankind. All nations and their peoples stand to lose through three-dimensional warfare. The Great War and this one are the writing on that wall.

There are those who say increase trade, increase the use of the air internationally, increase the dependence of nations upon each other, and war as we now know it has a fair chance in the future to vanish altogether. Instead, we shall eventually have a constant police system to combat an underworld which should be forced to live down to its name

We must, of course, be prepared, now and after the war, to proceed against outlaw nations, but that need offer little difficulty provided the more stable countries are able

to present a united front in the cause for humanity.

World unity is ultimately advisable, but turning from the ideal to an immediate and practical reality; if the world is to fulfil its destiny, if we are all to help the air and the world to their ultimate heritage, it is not sufficient merely to talk or write of peace.

We must learn how to practise it.

Has not the world already begun to do this? You will remember that America came in on England's side in the last war. America also brought golden dollars to help England in the slump of 1931, saving us from a more serious collapse. We later went to her financial aid. During this war she lifted the embargo on arms, passed the

Lease-Lend Act, and later joined us. We have also often helped France in much the

same way.

Behind the scenes, and before the war broke out, we know the support the great nations gave each other through their foreign exchanges and trade agreements, or when their nationals were in any form of helpless distress. What cannot the future hold in store for the world through similar agencies of international goodwill?

### HUMANITY, THY FAIR NAME STANDS CHALLENGED.

The Atlantic Charter, the Four Freedoms, the United Nations, in the affairs of

man they ring right somehow. Their early promise bids fair to mature.

Can you see a world of to-morrow in which nations maintain huge air forces, each bomber squadron of which could be equipped with aircraft carrying 100-ton bombs? In twenty years such power could put the world at the mercy of an over-ambitious leader, who might be tempted to stage a Pearl Harbour on any capital to wipe out all its ways overnight.

There is perhaps better prospect of world unity than we realize among nations who are now brought so close together by air communications as to make some form of

federation a matter of increasing human desirability, for the best of reasons.

And what better example in modern terms than that set us all by our leaders—our beloved King, the greatest Prime Minister in our history, and the finest President the United States have ever known.

### STATISTICAL REVIEW FOR QUARTER, MAY—JULY, 1943

MAY.

### EUROPEAN THEATRE.

WITH the elimination of Axis forces from North Africa during the month the air offensive from Great Britain was seen in closer relation to the air pressure from the south. Although Bomber Command made no attacks on the Italian mainland the air pincers on the Axis were exerted with greater pressure than ever before. For the first time the enemy in Europe was receiving sustained strategic bombing from west and south as well as from the Russian air fleets in the east.

From Britain, as from North Africa, the adjustment of effort between the R.A.F., Dominion and Allied squadrons and the U.S. Air Forces was marked by increasing

intensity and precision.

Features of the month in this theatre were; the breaching of the Mohne and Eder dams by nineteen Lancasters; the first discharge of 2,000 tons of bombs on a German target; the propagandist machinations of the enemy in favour of a bombing truce with parallel threats of reprisals; "tip-and-run" attacks by the enemy which, despite their short penetration of our defences, proved costly to him; encouraging successes by Coastal Command against U-boats; a sustained effort by Fighter Command in intruder and fighter-bomber operations.

Weather.—Night-flying weather conditions during the first part of May were bad on several successive nights, while low cloud or fog caused poor or bad conditions on most of the remaining nights between the 1st and 11th of the month. From then onwards weather was good, although patches of fog and small areas of low cloud and rain were experienced during the latter part of the month.

Bombing Effort.—The night bombing of the R.A.F., dovetailing into the day attacks by the U.S.A.A.F. from bases in Britain, saw still heavier blows struck in the Battle of the Ruhr. Either side of the breaching of the Mohne and Eder dams came three attacks which successively set up records for tonnage dropped until the 2,000 mark was passed in the raid on Dortmund on 23rd/24th.

In the three months March-May nearly 30,000 tons of bombs fell on Germany

alone. In the seven nights between 23rd and 29th more than 7,000 tons were dropped on the Reich.

There were seven major assaults made in the Battle of the Ruhr during the month: 4th/5th, Dortmund; 12th/13th, Duisburg; 13th/14th, Bochum; 23rd/24th, Dortmund; 25th/26th, Dusseldorf; 27th/28th, Essen; 29th/30th, Wuppertal.

Objectives in occupied territory were only attacked on one night, 13th/14th, when Czechoslovakia was visited on the night of the Bochum raid when a small force also went to Berlin. The German capital was raided by a small force on five other nights, 15th/16th, 16th/17th, 19th/20th, 20th/21st and 21st/22nd, and Southern Germany on the 17th/18th.

Day-bombing sorties showed a considerable increase during May. Germany was subjected to one day attack, that of the Mosquitos on Jena on the 27th. Targets in occupied territory were raided on the 2nd, 3rd, 4th, 5th, 13th, 15th, 16th, 17th, 18th,

20th, 21st, 23rd, 25th, 28th, 29th and 31st.

Airfields came in for a great deal of attention in these day attacks by both bombers and fighter-bombers. Typical results were: Poix/Nord. Photographs taken during the attack on 15th May by Mitchells and Bostons show eighteen bombs bursting on the dispersal area of the airfield, direct hits being scored on the perimeter track, and a further eighteen bursting on the landing area. Morlaix/Ploujean: Photographs taken during the attack on 16th May by Mitchells and Venturas show eighteen bombs bursting on the landing area of the airfield, thirteen in the dispersal area and five on the perimeter track. Abbeville/Drucat: Photographs taken after the attack by Typhoon bombers of Fighter Command showed that nine aircraft shelters on the north dispersal area had been destroyed by high explosive.

The daylight attacks on 2nd and 3rd May on Ijmuiden were particularly successful. The coke-oven plant of the M.E.K.O.G., which in pre-war days supplied gas to the Royal Dutch Steelworks, was severely damaged and a building covering an area of 2,500 square yards engaged on ammonium sulphate production and ammonia distillation was almost completely destroyed. The compressor house was severely damaged and the roof and the ammonium sulphate site has been destroyed over an area of 150 ft. by 100 ft. A workshop of Velsen Generating Station was almost completely destroyed

and a direct hit severed the railway line serving the steelworks.

Fighter Command's Whirlwinds and Typhoons were again active during the month. intruder operations or offensive patrols were carried out on twenty-three nights.

Transport.—The enemy's communications are seriously dislocated in the heavy raids made by Bomber Command, as well as by the direct attack on his locomotives

and rolling stock, his engine sheds and repair shops.

The breaching of the dams also contributed to this form of damage. A study of photographs from the point of view of damage to railways revealed that the damage was severe and would necessitate much heavy reconstruction work. The largest single item was the Herdecke Viaduct. The reconstruction of damaged embankments and the rehabilitation of silted-up tracks would necessitate a heavy call on labour and materials. The cutting of the Schwerte/Frondenberg line meant the temporary abandonment of that route as one of the three main eastern rail exits from the Ruhr. The remaining two eastern exits (via Hamm and Soest) would have to bear the whole weight of this traffic.

Railways in the Ruhr were now so over-burdened with evacuation traffic on top of the damage that had been done to the system in this area that evacuees were taken by

water wherever possible.

The damage done to communications in the course of a single night attack was seen at Stuttgart after the raid of 14th/15th April. Three important trunk lines were still not open to traffic on 17th April. Eight locomotives were put out of action and the signalling system, which is power worked and thus very vulnerable to air attack, was again badly damaged. The general dislocation was added to considerably by the damage to the overhead wires of the electrified lines.

The direct effect of a night raid on Italo-German communications was demonstrated in the raid on Mannheim/Ludwigshaven on 16th/17th April. As a result of the damage

to the railway yards there all through traffic, including coal to Italy via the all-rail route, had to be diverted through Schwetzugen and the dislocation was felt as far as

Freiburg.

Included in the heavy damage done to Bochum was that the main station buildings received four direct hits and the roundhouse was damaged, while at the north station another roundhouse was damaged and sheds in the south marshalling yards were destroyed.

In the Mosquito raid on the railway workshops at Thionville on 2nd May seven bays of the main workshop (950 ft. by 650 ft.) collapsed, and the roofs of two other workshops (750 ft. by 330 ft. and 300 ft. by 150 ft.) were damaged to a lesser extent.

Attacks on railway targets in May were well in excess of March, aircraft of Fighter and Army Co-operation Commands making more than 200 attacks during the month.

U-BOATS AND SHIPPING.—The home commands were all concerned in this class of

operation during the month.

Bomber Command contributed a gallant raid on the Carl Zeiss instrument works and the Schott Glass Works at Jena, both of great importance for U-boat equipment, on the 27th. The ports of Cherbourg and Flushing were also bombed by day on the 13th and

31st respectively.

Many hundreds of mines were laid by bombers during the month. The information usually obtained of the results of this important work is meagre, but more information is coming through with the increase in mine-laying of recent months. For example, from 2nd to 23rd May it was learned that two minesweepers, a motor-vessel and six steamers, varying in tonnage from 650 to 5,500 tons have been sunk after striking mines.

The German liner Gneisenau, of 18,160 tons, struck a mine in the Baltic at the end

of April and the liner was subsequently beached and is lying on her side.

Bombers flew anti-submarine patrols on twenty-six days.

Fighter Command aircraft were called upon to a greatly increased extent for shipping protection duties during the month. Attacks on shipping were made on eight days and ten nights. In the very successful night operations Albacores of the Fleet Air Arm, operating with Fighter Command, particularly distinguished themselves. More than seventy vessels of all types were attacked during the month.

Much of the U.S.A. bombing effort was directed against the enemies' ports and

U-boat bases, and on several of these operations R.A.F. fighters provided escort.

Coastal Command's ceaseless activity in the Battle of the Atlantic continued and increased. It was officially announced during the month that in a recent period aircraft of this Command destroyed five U-boats in ten days. Escorts were flown for convoys on every day of the month.

Coastal Command was also on the attack against enemy shipping with day and night attacks, and a day attack on convoys and torpedo attacks on ships on two other days.

Encounters with enemy aircraft were reported on three days.

Army Co-operation Command aircraft attacked enemy vessels on four occasions.

MISCELLANEOUS OPERATIONS.—Escorts to bombers or torpedo-carriers were provided by Fighter Command on nineteen days; sweeps were flown on twenty-two days.

ENEMY ACTION OVER GREAT BRITAIN.—The enemy sent more aircraft over this country during May than during April, but less than in March. The total number to make landfall by day or night did not again reach half the number of bombers sent out in more than one of Bomber Command's May attacks. Of these enemy aircraft considerably more than half were fighters or fighter-bombers. The maximum number of enemy bombers to fly over this country by day or night was about thirty-five.

Bombs were dropped on nine days and twelve nights.

#### MEDITERRANEAN THEATRE.

"Bon-Ficha. A total of thirty-six Baltimores and eighteen U.S. Mitchells, escorted by eighteen Kittyhawks, made three attacks on enemy positions to the south of the town Bombing was reported as accurate by our troops, who shortly after received the surrender of enemy forces. No further operations were carried out over the Peninsula."

It was the last official report of air action against the enemy troops in Tunisia. Thu

in a few concise official words was announced the end of the North African campaign

and the end of an Empire.

From 1st to 12th May, when it was announced that no Axis forces other than prisoners remained in the whole of North Africa, all the far-flung pieces of the campaign were fitted together into one close-up picture of victory in which all the various units of the vast Mediterranean Command had played the particular roles allotted them.

In the period of six weeks ending 2nd May nearly 27,000 sorties had been flown by squadrons other than the Desert Air Force. About 1,300 of these were made by four-engined bombers, while 19,000 were by fighters flying on sweeps as fighter-bombers, as escorts and as protection to our ground forces.

These sustained strategical and tactical operations resulted in the early days of the month, in the first objective of military warfare being achieved—the battlefield in Tunisia

had been isolated.

In the first six days of May every type of aircraft in the Mediterranean theatre was in action day and night against every kind of enemy target. Jetties on the Tunisian coast were attacked; Tunisian and Sicilian ports and airfields were bombed relentlessly; troop concentrations, ground positions, road and rail transport in Sicily, Southern Italy and Tunisia were strafed, and shipping in harbours and in the Narrows received terrific punishment.

On 6th May for the first time in any war sheer weight of air attack blasted a path through formidable enemy ground defences. A "carpet" of bombs laid by the Tactical Air Force prepared the way for the advance of our land forces, effectively demonstrating

what air domination can achieve.

On this day—6th May—2,500 sorties were flown and more than one and a quarter million pounds of bombs were dropped. It was the greatest single day's air offensive ever achieved in conjunction with a land battle. It ended in the successful ground thrusts into Tunis and Bizerta.

On the 7th was launched the greatest air assault on the enemy that any land army has been called upon to withstand. Complete air mastery was maintained throughout the day. Eleven vessels were sent to the bottom in the Straits and many others sunk in

Sicilian ports.

On the 8th Tunis was entered by our troops. The airfield of El Aouina presented an appearance which was a tribute to the attacks by our aircraft. Wrecks of at least 100 German aircraft and some Italian littered the airfield. The port itself and that of La Goulette were a shambles of bombed ships.

Cap Bon Peninsula came under heavy and concentrated air attack. The German Air Force had apparently withdrawn from the battle. There was, however, no pause in our air offensive. Targets in Sicily and on Pantelleria during the following days were

bombed on land and docks and shipping in their harbours.

On the 12th a strong bombing attack on enemy troops surrounded in the coastal sector north of Enfidaville resulted in the enemy's First Army's surrender. General von Arnim, G.O.C.-in-Chief of the Axis forces in Africa, was captured by our land troops.

After the enemy's disastrous surrender our air offensive continued with unabated fury against Sicily, Sardinia, Pantellaria and Southern Italy. While the evacuation of prisoners and the clearing up of the Tunisian battlefield was taking place the enemy's island airfields and communications were pounded day and night throughout the rest of the month. Thousands of bombs were dropped on vital targets by the North-West African Air Force during intensive operations on every day, excepting three, and on at least twenty-two nights. Aircraft of this Command, in bombing, anti-shipping, interception and other operations made a total of well over 18,000 day and 1,400 night sorties during the month, while the total of day and night sorties by aircraft of the Middle East approached the 4,000 mark.

Aircraft based on Malta played a big part in the offensive, flying over 1,500 sorties

during the period under review.

One significant feature of the offensive was the bombing, for the first time from North African bases, of Leghorn. The gap between Italian targets bombed from Home Bases and those attacked from the south is gradually being closed.

Typical of the damage which the Allied Air Forces have done, and are doing,

in the Mediterranean theatre to some of the land targets is shown in the following reports.

At Cagliari, Sardinia, it is calculated that bombing attacks obstructed nearly half of the port's berthing facilities for merchant shipping. In addition to this, great havoc had been caused in the town, almost entirely due to high explosive and blast. In the eastern part of the town quays were damaged and the fuel pumping station probably put out of action. Other industrial buildings had also been hit.

At Palermo, Sicily, aerial photographs showed that the port had sustained heavy damage by high explosive bombs and blast. The Piave Quay had been virtually severed by a tremendous explosion, which had caused twenty-one acres of damage to buildings and roofs. Many vessels had been sunk or severely damaged, and there was heavy damage to warehouses. Two areas to the north-west and north of Cala, covering approximately eleven acres, had been three-quarters devastated. The seaplane station had been destroyed and there was damage to the power station and other important buildings. The south quay of the Pontile Vittorio Veneto had received a direct hit, and a gap had been made 190 ft. long, while a further 250 ft. of the quay had been damaged. In the northern part of the harbour, the south-east corner of the Calate Puntone had been hit and 45 ft. of the quayside damaged. Railway sidings and rolling stock had been heavily damaged. South-west of the prison, the railway serving the Calate Puntone had been blocked by debris from a building destroyed by a direct hit.

At Grosseto, seven barrack buildings on the north boundary of the airfield had been destroyed, and the other nine partly destroyed or severely damaged. In addition to

damage on other buildings, eight aircraft had been damaged.

In the attacks on Mediterranean shipping, aircraft of the North-West African, Middle East and Malta Commands took heavy toll of enemy vessels in Sicilian and Tunisian harbours, in the Sicilian Straits and Aegean Sea and off the coasts of the Italian islands and mainland. Destroyers, tankers, barges, supply and merchant vessels were among the victims sunk or damaged.

West Africa.—Aircraft operating from West Africa were actively engaged on antishipping patrols, coastal reconnaissances, shipping escorts and other operations.

INDIA—BURMA FRONT.—The R.A.F. carried out offensive operations against the Japanese on every day and on nineteen nights during the month. During these attacks eleven raids were made on Akyab, seven on targets in the Mayu Peninsula, seven on Taungu, six on Prome, four on Rangoon and four on Mandalay.

Among the targets attacked were troop positions, supply and ammunition dumps. rolling stock and marshalling yards, oil installations and airfields. Enemy river craft moving essential supplies and troops suffered extensively. Nearly 300 vessels, mostly

sampans, were destroyed or damaged.

AIRCRAFT CASUALTIES.—In offensive operations over Europe from home bases eightytwo enemy aircraft were destroyed. This total includes enemy aircraft destroyed during bombing raids, fighter sweeps and fighter escort activities.

Over Britain fifty enemy aircraft were destroyed, making a total of 132 destroyed

during this period by home-based aircraft.

In the course of all these operations the R.A.F. lost 316 aircraft over Europe and nil over this country, making a total of 316.

The losses announced by the Middle East Command totalled six as against the destruction of forty Axis aircraft. Of these, thirteen were destroyed by aircraft based on Malta.

Allied Force Headquarters in North Africa announced the destruction during the

month of 337 enemy aircraft for the loss of 108 Allied aircraft.

In India and Burma sixteen enemy aircraft were destroyed for the loss of fourteen Allied aircraft.

### JUNE.

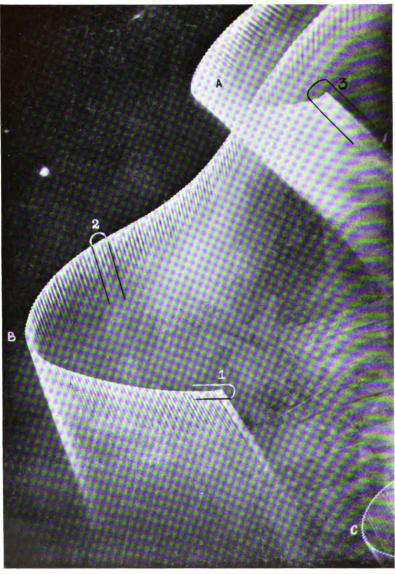
#### EUROPEAN THEATRE.

The R.A.F., Dominion and Allied squadrons, both by day and night, and the U.S. Army 8th Air Force by day, ranged far over Germany, Italy and occupied territory for their selected bombing targets in a month favourable to the enemy's defences.



HAMBURG—THAT WAS!

A vivid impression of a scene over Hamburg as it appeared to the crew of a Lancaster bomber. Another Lancaster is seen silhouetted against a background of fires and A.A. bursts which form a weird but artistic pattern in the night sky.



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#### SEARCHLIGHT PATTERNS.

This is one of the strangest photographs yet taken from British aircraft whilst on night operations over enemy-occupied

territory. In this case the flowing light-patterns, which have a queer beauty, were caused by the sweeping beams of searchlights recorded on the photographic negative whilst the camera's shutter was opened.

But to the expert in the highly specialized art of photographic interpretation it is much more than just a "pretty
picture," and from these curious streaks and waves he builds up a detailed story of what was happening when the photograph
was recorded.

These three graceful curves—seemingly of diaphanous crinkled paper—indicate the presence and activity of three searchthese three graceful curves—seemingly of diaphanous crinkled paper—indicate the presence and activity of three search-

These three graceful curves—seemingly of diaphanous crinkled paper—indicate the presence and activity of three search-lights, in operation during a night raid on Berlin. Of this photograph, the interpretation expert says:—
"On the photograph are the tracks of three searchlights, A, B, and C, which were present and active simultaneously. The track made by a searchlight can be divided into:—

(1) The track of the searchlight bowl.

A. The track crosses the photograph in wide sweeps because the aircraft was banking and turning.

B. The track is made up of little waves or steps because the aircraft was vibrating.

(2) The beam of the searchlight produces the curtain which lies along one side of the track of the bowl. The curtain is alternately bright and dim because the vibration of the aircraft makes the motion of the searchlight beam across the field alternately slow and fast. field alternately slow and fast.

(3) The fact that the beam is visible and fades away more or less evenly shows that there was mist and haze of considerable depth and uniformity. If the air had been clear, the beams of the searchlights would have been much less visible.

The bombing operations against Germany reached a new intensity in the latter part of the month.

A special bombing operation was carried out by several squadrons of Lancasters which made a two-way bombing attack by flying to North Africa and back, bombing Friedrichshafen on the way out on the night of 20th/21st and the naval base of Spezia on the way home three nights later.

A feature of the day bombing was the number of attacks made on enemy airfields

during the month.

Coastal Command helped to achieve what the Prime Minister described as the best month of the war from the shipping point of view by its constant reconnaissance and convoy protection patrols over the Atlantic and North Sea, in the course of which numerous U-boats were attacked.

The creation of the Tactical Air Force in this country was announced this month on the basis of the lessons learned in the North African theatre.

Weather was very changeable during the first eleven days of June, when low cloud, rain or fog caused poor or bad flying conditions at home operational bases almost every night. From 12th June onwards, however, flying conditions improved considerably. Over the month as a whole weather was very good on thirteen nights, variable but mainly good on seven nights, poor on five nights and bad on five nights.

Bombing Effort.—The Battle of the Ruhr developed considerably during the latter part of June as heavy raids followed one another on Dusseldorf (11th/12th), Bochum (12th/13th), Oberhausen (14th/15th), Krefeld (21st/22nd), Mulheim (22nd/23rd), Wuppertal (Elberfeld), 24th/25th, and Gelsenkirchen/Bochum (25th/26th) in the space of fifteen nights. Over 10,000 tons of bombs were dropped in these seven attacks.

In the last twenty nights of the month Bomber Command discharged a weight of some 15,000 tons of bombs. As well as the seven heavy Ruhr operations, Cologne was attacked in force on the 16th/17th and more heavily on the 28th/29th, and the Schneider armament works at Le Creusot was subjected to a concentrated blow on the 19th/20th. Minor bombing raids were made by night against Germany on eight nights, the bombing of Friedrichshafen and Spezia taking place also on two of these nights, 20th/21st and 23rd/24th.

RESULTS.—During the month much photographic evidence has been obtained of the industrial damage in the Ruhr and Rhineland. Less reliable evidence of the effect of

Bomber Command's raid has been given by the German propaganda service.

An estimate of the effect of this unprecedented bombing is not easy to obtain. Many of the reports from neutral countries are inevitably suspect, but one to which more credence might be given than most came from a person prominent in the newspaper world of a neutral country, who gave the following opinion: "All my sources of information report that there has been a catastrophic fall in morale and conditions since the Spring of this year. The gravest problem of all is the question of the bombed-out population of the big cities. It is becoming increasingly impossible for the authorities to deal with this, and if the bombing should continue as at present Germany will be face to face with a really grave crisis on this score alone."

Corroboration of previous reports concerning the general effectiveness of small-

scale Mosquito attacks on the German capital was also received,

Further repercussions resulting from this year's attacks on Essen became known. Undamaged machinery had been sent from Krupps to Luxemburg and Mulhouse, and 3,500 workers arrived in Alsace. One hundred thousand people of Essen had no roof over their heads. The attitude of the workers, added to the difficulties arising from the actual damage to plant, had made it difficult to restart the works.

In Krupps itself, interpretation of photographs taken after the May raids on Essen showed that six machine shops had been severely damaged, and five buildings of a power plant serving the steam hammer sheds partially destroyed. A foundry, a rolling mill and the Diesel motor shop, the administrative offices and several other offices were all more

or less seriously damaged.

Typical damage was also seen in other parts of the town. Three collieries and a

nut-and-bolt factory at Stoppenberg had been hit, and many commercial buildings at Altenessen and in the city centre had been destroyed or damaged. A hutted camp and two flak positions had suffered damage, and the road bridge over the railway at Delwig had been broken. There were also several direct hits on tracks and two acres of gasworks buildings at Segeroth had been destroyed.

After the Wuppertal attack on 29th/30th May fires were still raging at noon on 30th May and were only got under control with the assistance of neighbouring brigades. The efficiency of the civil defences was considerably impeded by the fact that the higher officials were already absent in the countryside. In addition to the usual extra rations,

more than a million tins of preserved fish were rushed into the district.

One further result of the breaching of the Mohne dam became known. The water supply of Dortmund was completely disorganized and the canal level considerably exceeded all previous records. This dam destruction resulted in severe restriction in the use of water, and at Gelsenkirchen and Essen for a time some of the inhabitants were only able to obtain one pint per person per day.

Fighter-bombers and light bombers were active against a variety of targets in occupied territory. Power stations, port facilities, factories, airfields and various railway

targets being among the objectives.

Intruder operations were carried out on twenty-one nights of the month.

TRANSPORT.—Strategic bombing has a broad pattern and nowhere is this more apparent than in the sphere of transport. A heavy attack on a Westphalian or Rhenish centre may strike at the enemy's communications in a variety of ways. Recent attacks by Bomber Command were estimated to have reduced the coal traffic to Italy—for instance—by one-third.

It is not only rail traffic that is affected. At the end of last month traffic by means of Rhine barges from the Ruhr to Basle had stopped completely, at least for the time

being

Downstream in the direction of Holland this important Rhine barge traffic was delayed up to five or six days as the result of our attacks on Germany's extensive

inland ports and docks, such as those at Duisburg.

Typical results from a heavy attack on a German industrial centre's transport could be seen in the Dortmund attack of 4th/5th May, when the destruction of signal boxes and railway lines at the main station prevented any train leaving on the following day. Two trains present at the time of the attack were burnt out. Both of the station air-raid shelters were hit and casualties were severe. Goods sheds, repair shops, rolling stock and tracks in four other stations were also hit during this attack.

Transport targets were the objectives of Fighter Command aircraft on twenty days

and fourteen nights, nearly 150 trains being successfully attacked.

U-BOATS AND SHIPPING.—All the home commands took part in offensive and defen-

sive operations in the Battle of the Atlantic and over other waters.

Coastal Command's untiring efforts in anti-submarine work, reconnaissance and convoy escort duties were mixed with some sharp offensive blows against enemy shipping. On the 13th a convoy was attacked by Beaufighters off the Dutch coast, one supply ship being sunk and five other vessels damaged. A week later Hampdens attacked shipping off Norway and two days later a heavily defended convoy was the objective of a force of Beaufighters which were escorted by Spitfires and Typhoons of Fighter Command. Fighter escort was again provided on the 27th, when Beaufighters attacked and damaged shipping off the Dutch coast.

Escort for convoys was afforded on every day of the month.

Coastal Command's journeys were not undisputed by the enemy. On the 2nd a Sunderland was attacked by eight Ju. 88's and shot down three of them, and on the 12th

a German flying-boat was shot down off Norway.

Shipping protection was provided by Fighter Command on twenty-eight days and fourteen nights. Shipping targets were sought by aircraft of Fighter Command or naval aircraft flying with this Command on twenty-five days and seventeen nights, some seventy-five successful attacks being made on various enemy vessels at sea.

To supplement Coastal Command's anti-submarine patrols bombers flew patrols on

twenty-six days. Sea-mining was again a feature of Bomber Command's night

operations.

It became clear during the month that Ju. 88 long-range fighters were now based to an increasing extent in the Lorient and Bordeaux areas to assist U-boats in the Bay of Biscay. Routine patrols by single aircraft are carried out but on occasions formations of Ju. 88's are seen.

MISCELLANEOUS OPERATIONS.—Splendid concentration of bombing marked attacks on airfields in occupied territory. Photographs taken during the Ventura attack on Maupertus airfield on 24th June showed eighty-five bomb-bursts on the landing area, including three on the perimeter track, while twelve other bursts are recorded among shelters in the south-east dispersal area. Nineteen other attacks on airfields by R.A.F. aircraft were announced during the month.

Fighter aircraft carried out sweeps and supported bomber formations on sixteen days.

RAIDS ON THIS COUNTRY.—There was a drop of approximately 40 per cent. in the total number of sorties made by the enemy over this country during the month. Bombs were dropped on eleven nights and six days. More than half the number of raiders were fighter-bombers.

### MEDITERRANEAN THEATRE.

The first part of the month witnessed the intensification of the air assault against Pantellaria, which surrendered on 11th June after a twenty-four-day campaign. The island was occupied at a total cost of some forty airmen. More than 3,000 bomber and fighter-bomber sorties were made against it, and out of these less than twenty aircraft did not return—an average of one aircraft out of every 150 which operated against the island.

The occupation of the island commenced at noon on 11th June, after nearly 1,000 sorties had been made by our aircraft during the morning. On the day that Pantellaria fell, 273 sorties were carried out against Lampedusa and 280 more on the 12th before its early morning surrender. On the 13th the small island of Linosa fell and the next day saw only patrol activity in the Mediterranean.

The occupation of Pantellaria made available to our air forces the airfields from which Allied fighters could now provide cover to operations over the western half of

Sicily. Fighter cover over the eastern half could be provided from Malta.

During the third week of the month, air operations in the Mediterranean switched to Italy's islands—Sicily and Sardinia—and the Italian mainland. Attacks on targets in

these areas were increased with intensity.

Important airfields in Sicily were attacked on the 14th/15th, 15th, 18th and 20th, Wellingtons, Mitchells, Marauders and Fortresses taking part. Lightnings and Warhawks provided escorts on some of the operations. The docks at Naples were attacked on the 16th/17th, and Messina raided in strength by daylight on the 18th. On the same day, shipping and railway yards were raided at Olbia in Sardinia, as well as communications in the island. Wellingtons attacked Syracuse on the 18th/19th and Messina on the 19th/20th. Castelvetrano and Borizzo were attacked on the 20th. Objectives at Naples were bombed by Fortresses on the 21st, and on the same day Mitchells, escorted by Lightnings, attacked Salerno and Battipaglia. Wellingtons continued the attack on Salerno that night.

The next night (June 22nd/23rd) Wellingtons from North Africa attacked the docks at Olbia, in Sardinia, while R.A.F. bombers from the Middle East flew to Sicily, where

the airfield at Comiso was bombed.

On the night of 23rd/24th June, bombs were dropped in the industrial area and on the marshalling yards at Catania, in Sicily, by Wellingtons operating from North Africa. Morning was the signal for preparations for raids on various targets in Sardinia, and when the day was over the "score-board" for the medium and fighter-bombers which had been operating was twenty enemy aircraft shot down, two airfields bombed, a railroad junction and industrial plants hit, together with successful attacks on shipping. At the same time heavy bombers of the 9th U.S.A.A.F. were attacking Sedes airfield in Salonika. Without loss to themselves, the Americans scored direct hits on three

hangars, all of which were left in flames. Other important buildings on the airfield

suffered damage.

On the night of 24th/25th June Wellington bombers attacked Olbia, in Sardinia, and many fires were left burning in the docks and marshalling yards. Later, on the day of the 25th, a large force of B.17 Flying Fortresses of the Strategic Air Force flew to Messina, where the marshalling yards and docks were well covered with bombs. Many fires were started and a merchant vessel was severely damaged.

At night, attacks on Messina continued when heavy R.A.F. bombers—operating under the Middle East Command—started fires near oil tanks and the main railway

station. Naples was bombed by Wellingtons on the night of 26th/27th.

Airfields at Eleusis and Hassani, west and south-east of Athens, were attacked by American heavy bombers on the 27th. There were direct hits on a number of hangars and bombs did severe damage to other buildings and runways. At Hassani five aircraft were seen burning on the ground. During both attacks combats took place with enemy

fighters, seven being destroyed by the bombers, all of which returned safely.

Wellingtons continued their night attacks on the 27th/28th, when they attacked the marshalling yards at San Giovanni in Southern Italy. Later in the day (28th) American Flying Fortresses attacked Leghorn. Many fires and explosions were caused, and shipping was damaged in the harbour. Medium bombers attacked airfields in Sardinia, while Marauders, escorted by Lightnings and Warhawks, made attacks on airfields at Milis and Decimomannu. During the night of 28th/29th, R.A.F. heavy bombers attacked the one ferry terminus at Reggio Di Calabri, and Wellingtons the other terminus at Messina.

On 29th/30th bombers of N.W.A.A.F. again attacked Messina, where the marshalling yards and ferry terminal were "well covered with bombs." The next day, escorted Fortresses attacked Palermo and Boca di Falco airfield. Mitchells and Marauders, with

fighter escort, raided airfields at Sciacca, Borizzo and Milo.

Attacks on Mediterranean shipping were made on almost every day of the month by aircraft of the North-West Africa, Middle East and Malta Commands off the coast of Italy, Sicily and Sardinia, on the west coast of Greece, in the Gulf of Corinth, in the Aegean Sea, and between Crete and Rhodes.

Vessels sunk or damaged included E-boats, transports, a tanker and a dredger.

tugs, merchant vessels of several types, and a number of sailing ships.

MALTA.—Intruders based on Malta made repeated attacks during the month on railway communications in Southern Italy and Sicily, on road transport and the airfield at Comiso, railway sidings at Milazzo and rail targets in Western Italy. Fighter-bombers operated against factory and airfield targets in Southern Italy and South-East Sicily, while fighters were active as cover to U.S.A.A.F. heavy bombers in attacks on South-East Sicily and Southern Sicily. In addition, they shot up railway and road transport in Sicily. Mosquitoes based on Malta bombed railway stations and sidings in Sicily and Southern Italy. Anti-shipping patrols, shipping protection and interception sorties were among their other principal operations.

The month saw an all-round increase in the activity of aircraft based on the island, the number of sorties flown being almost twice the May total. Nearly three times as many sorties were made by day-bombers of one type or another, and interception flights

practically doubled in number.

West Africa.—Aircraft of the West Africa Command were in operation practically every day of the month, their main task being the provision of escorts to shipping. A limited number were also flown in anti-submarine patrols over the waters of the South Atlantic. Coastal reconnaissances were also carried out.

INDIA-BURMA FRONT.—One important aspect of the work of the R.A.F. in this theatre is the dropping of supplies by parachute to isolated troop detachments. The gripping exploits of the Wingate Expedition brought home the significance of this type of operation. Without help from the air it would have been impossible for that small muster of men to penetrate as deeply as they did behind the enemy lines and cause so much havoc. Reports tell of how one supply drop of ten tons included food for ten

days and a new issue of boots, and how the co-operation of the R.A.F. proved conclusively that a large force could be entirely supplied by air behind the enemy's lines

for a period of months.

The month saw more supply dropping. On six occasions aircraft were despatched to isolated areas where our ground troops were harassing the enemy—probably far behind his lines of defence and communications. Full details of these six important " sorties" cannot be told yet, but behind them is undoubtedly a story of more successes which must be held over until the return of the ground troops, or until their reports are received and can, with safety, be released.

In addition to this supply dropping the R.A.F. continued its offensive operations against the Japanese almost every day. Bombers caused havoc on nine occasions in the Maungdaw—Buthidaung area, and there were five big attacks on Kalemyo. Other important targets to receive attention from our bombers and fighters included the Mayu

peninsula, Kangaung airfield, Akyab Island and Mandalay.

Among the targets attacked were enemy troop positions, storage warehouses, troop hutments and tents, road transport, oil installations and river transport. A large number of supply sampans were destroyed or damaged.

Aircraft Casualties.—In offensive operations over Europe from home bases eightythree enemy aircraft were destroyed. This total includes enemy aircraft destroyed during bombing raids, fighter sweeps and fighter-escort activities.

Over Britain twenty-five enemy aircraft were destroyed, making a total of 108

destroyed during this period by home-based aircraft.

In the course of all these operations the R.A.F. lost 335 aircraft over Europe and

nil over this country, making a total of 335.

The losses announced by the Middle East Command totalled five as against the destruction of sixty-two Axis aircraft. Of these, twelve were destroyed by aircraft based on Malta.

Allied Force Headquarters in North Africa announced the destruction during the

month of 264 enemy aircraft for the loss of sixty-four Allied aircraft.

In India and Burma nil enemy aircraft were destroyed for the loss of four Allied aircraft.

## JULY. EUROPEAN THEATRE.

THE weather was, to a greater extent than would normally be expected in July, the arbiter of the scale of effort by the R.A.F., Dominion and Allied squadrons operating from this country. In two periods towards the middle of the month offensive operations were reduced to a minimum.

Weather.—For the first nine days of the month weather was generally good apart from fairly general thunderstorms in the early evening during the second part of that period. Flying conditions were bad on the 10th and 11th on account of low cloud and rain. From the 12th to the 18th conditions were consistently good; on 19th, 20th and 21st poor, and on 22nd, 23rd and 24th visibility deteriorated badly. From the 25th to end of the month weather was generally good.

BOMBING EFFORT.—In spite of these difficulties, which interfered both with the operations of Bomber Command and with the U.S. Army 8th Air Force's daylight attacks, a greater tonnage of bombs was discharged on Germany than in any previous month.

Occupied territory was only raided on one night by our bombers, when they dropped

nearly 400 tons on the Peugeot Works at Montbeliard.

Photographs taken following the attack show that seven buildings of the Peugeot A.F.V. Works have been severely damaged and six slightly damaged by direct hits. The machine shop has been destroyed over 2,810 square yards, the steel castings foundry has been gutted over 2,310 square yards, and several workshops and unidentified buildings have suffered more or less severe damage.

In addition, nine buildings and three sheds of the Soc. Des Magnetos Lumiere have

been destroyed or severely damaged, and an unidentified building in the Peugeot Automobile Works has been half destroyed.

Turin was subjected to a concentrated raid of some 750 tons on the night of 12th/13th and an important transformer and switching station in Northern Italy was attacked by outward-bound Lancasters on the nights of 15th/16th and 16th/17th and,

returning, they gave a sharp blow to the port of Leghorn on 24th/25th.

A preliminary interpretation of photographs taken after the attack on San Polo D'Enza on 15th/16th July shows considerable damage to the transformer and switching station. The main building has suffered severe roof and blast damage and one power pylon has been destroyed. A small building near the Transformer Station has been severely damaged and the railway track alongside has been damaged by blast.

Although full-scale effort by Bomber Command was only possible on five nights and medium employment on six nights, 16,000 tons were dropped by Bomber Command

during the month.

Much small-scale raiding was also done by Mosquitoes. As a result of the Mosquito attack on Hamburg on 28th/29th June corn warehouses on the north bank of the Elbe were completely burnt out.

Hamburg suffered three heavy raids and five Mosquito attacks. This port was subjected to the weight of more than 7,000 tons of bombs from British bombers alone in these three heavy raids, compared to the 7,500 tons which the Luftwaffe dispersed over the whole London area in the eleven months between September, 1940, and July,

1941. Heavy and concentrated attacks were also made by U.S. bombers.

Cologne which, like Hamburg, is of paramount and abiding importance to Germany's war effort, was twice the main object of attack, in great force, on the 3rd/4th and with a less heavy 1,000-ton operation on the 8th/9th. Other heavy blows were delivered against Gelsenkirchen on the 9th/10th, Achen on the 13th/14th, Essen on the 25th 20th, and Remscheid on the 30th 31st. The delivery of another 5,000 tons of bombs on these targets represented another substantial contribution to the war.

Mosquito raiding, in which the targets have included Berlin, Cologne and Munich, was carried out on seventeen nights. (On nine of these nights other bombing operations

were carried out.)

Bonning Results.—A general report on conditions in the Ruhr was received. As a result of the weight and scale of R.A.F. attacks in the month of June, the organization of the Defence Services had to undergo considerable modification. Salvage operations had to be curtailed considerably and little or no attention paid to private property, priority being given to the saving of public buildings, banks, post offices and the like. After a heavy attack fires are so numerous that one of their principal tasks is to ensure that two or three lanes are kept open through the fires to enable the population to proceed to safety.

Among further reports of results it became known that during the attack on 20th 30th May on Wuppertal (Barmen) large quantities of parachute material, as well as many completed parachutes were destroyed in the warehouses of two textile plants

which were hit.

After the heavy attack on Dusseldorf of 11th, 12th June it was sixteen days before

the railway services returned to normal.

When Friedrichshafen was attacked, on 20th 21st June, the Zeppelin hangar and the Z.F. gear works received direct hits, causing fires. Many radiolocation stores near the hangar were wrecked by H.E. and a considerable part of the radio factory's equipment must have been destroyed. A bomb also exploded in the centre of an anti-aircraft

battery, wiping out most of its personnel.

The attack on Le Creusot and Montchanin on 10th 20th June was particularly effective. Photographs show that the Le Creusot steel and processing works have had seven buildings destroyed, four heavily damaged, and seven others damaged in varying degrees. These include the steel foundry and the building containing the electric furnaces. In the locomotive and armament section of the works, thirty-one buildings have been involved, of which four are destroyed and nine heavily damaged, including the shop for autogenous welding, the turbine machine shop and rolling mills.

The Breuil steelworks has four of its main shops affected, and the general machine

shop has six and a half acres of roof damaged by blast. The main building of Henri Paul et Cie (iron and bronze foundry) at Montchanin has been seriously damaged and several smaller buildings are affected. Both railway lines (Roanne—Montchanin) were cut at several points near Montchanin Station. On the Nevers—Chagny line both tracks were also cut and two trains were derailed. In addition, there was heavy damage to railway buildings and equipment.

INTRUDER OPERATIONS.—Intruder and offensive patrols over occupied territory and North-West Germany were again a feature of night operations. On twenty-two nights intruders were active. On twelve of these nights successful bombing attacks on enemy airfields were made and eight enemy aircraft were also destroyed in the air. Railway objectives were attacked on twenty of these nights and industrial targets on two nights.

OFFENSIVE BY DAY.—The British contribution to the offensive against the enemy from the air by day came almost entirely from Fighter Command, with which the Tactical Air Force now operates.

There was a great increase in the percentage of offensive, compared to defensive, sorties over previous months. This type of operation has shown a rapid increase in recent months. The number of sorties flown in July was more than three times those flown in March.

At the same time the purely defensive work has appreciably decreased, sorties in

July being less than a third of those flown in March.

Attacks by medium, light and fighter-bombers were carried out on twenty-two days, on ten of which fighters also attacked objectives in enemy territory. On five other days fighters operated by themselves against land targets.

Bombing attacks on airfields were made on thirteen days. Typical results were shown in photographs taken after the attacks on Poix airfield on 15th July. They show a large concentration of craters on the landing-ground and at least twenty craters on the north-eastern dispersal area, six of them on the tarmac.

Railway objectives were the targets for daylight bombing on eleven days.

Photograph's taken after the attacks on St. Omer on 9th and 10th July show that in the railway yards the engine roundhouse has been damaged at both ends by direct hits. In the aero-engine repair shops nearby, the main building has been severely damaged by at least eight direct hits, and there is also severe damage to the boiler-house and the administrative offices.

Fighters also made cannon-gun attacks on railway targets, damaging more than seventy by day during the month, apart from a similar number damaged at night during intruder operations. Day bombing also accounted for other locomotives.

Industrial targets were bombed by day on eight occasions.

An immediate interpretation of photographs taken after the R.A.F. and U.S.A.A.F. attacks on Zeebrugge on 27th and 28th July shows at least one direct hit on the New Coke Ovens. Three buildings of the Benzol Plant have been destroyed and another severely damaged. Two more have suffered roof damage. South of the Benzol Plant, the power station has been hit at both ends and adjoining buildings have been destroyed or severely damaged.

Most of this day-bombing was done under fighter escort and our fighters had a busy month with British and American daylight attacks. Bombing formations were escorted on twenty-two days, and sweeps, mostly diversionary to bombing attacks, were

made on the same number of days.

Results of earlier daylight attacks are now known. During the attack on Rotterdam on 22nd June three direct hits were made on Wilton Fijenoords engine shop and assembly hall, and at least two more on a large floating dock. Other bombs fell across a naval vessel and a floating crane.

When Flushing was attacked by Venturas on 24th June many direct hits were obtained on the De Schelde engine shops and the marine dock, on adjacent buildings on the quayside and among oil storage tanks on the east side of the Verbreed Canal.

U-Boats and Shipping.—Coastal Command had its most active month of the year during July. The total sorties exceeded by several hundreds that of any previous month.

Twice Anti-submarine patrols and reconnaissances continued throughout the month. the number of anti-submarine patrols were flown in July compared to April.

Convoys were escorted on twenty-nine days.

Coastal Command put out special offensive formations against enemy shipping on four occasions, apart from attacks made on routine patrols. Seven encounters with enemy aircraft were reported during the month.

The effect of Bomber Command's devastation of Hamburg, with its great potential for U-boat assembly and production, is bound to be far-reaching. Cologne, also attacked by our bombers, makes Diesel engines and other U-boat components, while Remscheid, as a machine-tool centre, will have contributed to submarine production in a variety of ways.

Sea-mining this month was carried out by our bombers on sixteen nights. Reports

were received of the following further results of minelaying from the air:

May.—Three vessels damaged.

June.—Four vessels sunk, including one of 5,000 tons, and six others mined or damaged.

July.—Eight vessels sunk or damaged.

Enemy shipping was attacked by our medium, light, fighter-bombers or fighters or by naval aircraft operating with Fighter Command on nine days and five nights, more than forty vessels being sunk or damaged.

Our fighters provided protection for shipping on twenty-nine days and eleven nights. Anti-submarine patrols were carried out by aircraft of Bomber Command on sixteen

ENEMY ACTION OVER THIS COUNTRY.—There was a further diminution in the enemy effort over this country. By day only one bombing attack was made, on the 9th, and bombs were dropped at night only seven times. Less than 150 enemy aircraft of all types operated over this country during the month. During a period of twelve days and eleven nights no enemy aircraft flew overland, and again for another period of ten days and nine nights later in the month. Fewer aircraft flew over this country by day than in any previous month of the year, and of those that did less than half actually bombed. In fact less than a dozen enemy bombers or fighters attacked land targets by day.

### MEDITERRANEAN THEATRE.

SICILY.—The high-light in the Mediterranean theatre during the month under review was the successful invasion of Sicily. The welding of the Mediterranean air forces into a weapon of both defensive and offensive action made the invasion possible by enabling the Allied High Command first of all to build up a battering ram strong enough to effect a landing.

Assisted by adequate air cover for some months our supply and troop ships were enabled to reach the invasion ports in North Africa and Malta from both ends of the Mediterranean, in spite of the increase in the number of enemy submarines. In addition, the enemy was effectually prevented from increasing his strength on the island by our persistent day and night air attacks on his harbours, ships and communications.

Every type of aircraft at our disposal was in operation: Fortresses, Liberators. Halifaxes, Mitchells and Wellingtons for the sledge-hammer blows; Bostons, Baltimores and Marauders for "stinging"; Mosquitoes and Mustangs for more specialized

work.

days.

The enemy's supply ports were hammered and his local air forces and airfields were systematically attacked. Fighters kept the skies clear of his protective aircraft. For the first nine days of July this preparatory "softening" process was intensified.

and at dawn on the 10th of the month Sicily was invaded at a number of points.

The streams of landing craft and airborne troops to each of these landing points were protected by our fighter cover. Airborne troops played an important part in the assault, large numbers of troop-carriers, aircraft and gliders being used in the operations of the night of 9th/10th.

During those first nine days of July nearly 10,000 sorties were made by aircraft of the

North-West African, Middle East and Malta air forces.

During the following ten days, when our tactical air forces were operating by day and night in co-operation with the land forces in establishing and expanding our bridge-heads at the several landing points, both ends of the Messina ferry and targets farther afield on the Italian mainland were heavily attacked.

Docks and railway communications were bombed at Naples on the night of 14th/15th. Heavy bombers followed up on the 15th with attacks on communication points and industrial targets at Naples. On the 15th/16th, R.A.F. Liberators and Halifaxes attacked the airfield at Crotone, in Southern Italy, and on the 16th the airfield at Bari was bombed by Liberators of the U.S.A.A.F. The marshalling yards at Naples were again bombed on the 17th by U.S.A.A.F. Liberators.

On the 17th the strongest force of heavy and medium bombers ever to attack Italian mainland targets bombed Naples again, and R.A.F. Halifaxes and Liberators from the Middle East bombed rail and port facilities at Reggio di Calabria on the 17th/18th.

ROME.—For the first time—on the 19th—military targets in Rome were bombed in daylight by over 700 aircraft. Flying Fortresses, Mitchells and Marauders of the North-West African Air Force and Middle East Liberators dropped 1,100 tons of bombs during the operation. This raid was the biggest ever carried out against one objective in the Mediterranean area.

Very severe damage was caused by the attack. The marshalling yards at San Lorenzo and Littoria suffered heavily and a great deal of rolling stock and railroad installations were destroyed. The Tabonelli steel plant and a large chemical works were

also destroyed.

Casualties among Italian airmen at Littorio and German airmen at Ciampino airfields were heavy, and a barracks at San Lorenzo used by the Germans as a local

headquarters was destroyed.

The destruction of the aqueduct near San Lorenzo left that district and Nomentana without water. Several incidents occurred in which Germans were killed and the majority of the population spent the night in the park and other open spaces near the Vatican.

The crowds and confusion at those stations that were still working were unbelievable. Neither food or water was obtainable on the stations or trains, and departures up to five hours late were nothing out of the ordinary.

Our bomber losses over the Italian mainland have been surprisingly low. The

Rome raid cost less than I per cent. of the aircraft despatched.

Since the initial landing in Sicily, strategic bombing of communication centres, airfields and ports has thrown the enemy into confusion, delayed his assembly of reserves, frustrated any attempts at offensive action and caused his air defence to crumble.

During the third week of the month increasing air attacks in support of our

advancing land forces was perhaps the most important feature.

Among the south Italian mainland targets were airfields and communications of Reggio di Calabria, Vito Valentia, Cotrone, Monte Corvino, Pomigliano, San Giovanni,

Foggia and Bari.

Particular attention was paid to Messina and Reggio di Calabria, and the enemy's air and sea supply traffic across the Straits and in the Tyrrhenian Sea. Attacks were kept up by night and day against his airfields, landing-grounds, harbours of loading and discharge.

On the 18th, Lightnings on escort duty in the latter area destroyed an entire formation of fifteen Ju. 52 transports, and on the 25th twenty-one out of thirty escorted

air transports of the same type were shot down.

Throughout the month, in conjunction with submarines and small craft of the Allied Navies, our air forces, including torpedo-carrying aircraft, combined in the hunt for Axis shipping in the Mediterranean generally and to Sicily and Sardinia in particular.

During the latter part of the period under review, Sardinia came more into the picture, bombing attacks and fighter sweeps against the island being carried out on the 17th, 20th, 22nd, 28th, 29th and 30th.

In the Eastern Mediterranean during the last three weeks of the month our aircraft

increased their attacks on enemy targets. Offensive sweeps were made against shipping off Crete and Western Greece, and in the harbours of Rhodes, Melos, Paros and other islands in the Aegean and Ionian Seas. A large-scale offensive in conjunction with the Hellenic Air Force was carried out by Hurricanes, Beaufighters and Baltimores on enemy forces and installations in Crete on the 23rd. An ammunition dump, tented camps, gun positions, cars and transport vehicles, wireless and power stations were among the targets successfully attacked.

Aircraft of the North-West African Air Force were in action on every day and

on all but two nights, a total of nearly 20,000 sorties being reached.

Middle East aircraft carried out a total of nearly 4,000 sorties by day and night.

MALTA.—With only one night's exception, Malta-based aircraft operated against the enemy every day and every night during July. Targets in Italy, Sicily and other Italian islands all felt the weight of bombs and machine-gun attacks of the bombers and fighters. The total number of sorties flown from the island has never been so high. Malta was one of the "stepping stones" to Sicily, and successive waves of its aircraft helped in the softening process before the land invasion. During the first four days of the occupation, aircraft from Malta carried out over 3,600 sorties. Malta was no longer on the defensive. She became an "aircraft carrier" in the fullest sense. The island on the defensive. She became an "aircraft carrier" in the fullest sense. was one vast airfield, and a ceaseless fighter umbrella was maintained for the invasion fleet to Sicily, and eventually for the thousands of troops landing on the beaches. Every day Malta aircraft were over the Sicilian coast until the battle began to move forward. Each squadron was making between two and four sorties a day. Then the battle moved still farther away. All types of Allied aircraft which had been temporarily · "in residence" on the G.C. island moved off and established themselves on captured Sicilian airfields. Bombers from Malta carried on with the pounding of enemy troops and columns and gave close support to the Allied invaders. All this time Malta maintained her intruders and night fighters, and in addition gave fighter protection to our ships off Sicily. They also flew patrols to intercept enemy bombers, and watched his Italian airfields. The task was done so well that, during the month, they destroyed by night 62 enemy aircraft out of a grand total of 200.

Other Malta-based aircraft were flying anti-submarine patrols, and reconnaissance planes kept watch on Italian ports, sea lanes and airfields by day. Beaufighters swept over the sea, as far away as Greece, where they attacked an enemy seaplane base.

West Africa.—The month was a busy one for aircraft of this Command. The number of sorties flown in connection with the provision of escorts for shipping was higher than usual, some 400 having been made on this work alone. On one day twenty-four escort sorties were carried out and on every day aircraft were operating on this vital work of giving protection to Allied ships.

In addition, aircraft of this Command were also engaged on anti-submarine and

oustal reconnaissances.

#### India—Burna Front.

In addition to bombing operations against the Japanese on almost every day in this theatre of war the RAF, has again been fully engaged on the important work of supply dropping. A large number of fights in this connection have been carried out. On one day, for example, twenty-eight tons of vital supplies for land forces were dropped by parachute in the course of nine sornes. Eight days later, thirty-five tons were carried and safely delivered in one day. Sixteen sorties were flown on another exasion, and on another day, in addition to dropping fifteen tons of supplies, our aircraft were also engaged in another unusual operation, an attack on enemy elephant transport.

RAF. Vengeuree directombers have been busy burussing Japanese positions during the month. On the 7th, escorted by Harrounes, they attacked enemy monsoon quarters at Danngdara. Bombs were seen to burst in the centre of the target area—a group of army butness—and after the bombing the Vengeunces followed up with a low level machine gun attack. The same tactors were repeated the next day at Buthiding and Danngdara, and on the toth Vengeunces were out over Akyah Island, but one machine gunning unportant objectives. Japanese transport—motor vehicles,

railway trucks, steamers, barges and supply sampans—has suffered considerably from our bombers and fighters. On the first day of the month Beaufighters on offensive patrols found a variety of targets along the Irrawaddy, and damaged two river steamers, two barges, a motor lorry, a number of sampans, and shot up about 195 railway trucks. The next day, whilst patrolling the Chindwin and Irrawaddy Rivers, fighters sank ten sampans and damaged more than fifty others, and left a 70-ft. barge sinking. On the Mayu Peninsula, Hurricanes set fire to thirty-three army huts. Seven locomotives, about seventy-five trucks and five water tanks were damaged by Beaufighters along the railways in central Burma on the 21st, and two days later R.A.F. fighters, in the course of offensive patrols over Burma, attacked and damaged over 100 enemy river craft, ranging from a steamer to supply sampans.

### AIRCRAFT CASUALTIES.

In offensive operations over Europe from home bases III enemy aircraft were destroyed. This total includes enemy aircraft destroyed during bombing raids, "intruder" operations, fighter sweeps and fighter-escort activities.

Over Britain eighteen enemy aircraft were destroyed, making a total of 129 destroyed

during this period by home-based aircraft.

In the course of all these operations the R.A.F. lost 258 aircraft over Europe and one over this country, making a total of 250.

The losses announced by the Middle East Command totalled thirty-nine as against the destruction of seventy-seven Axis aircraft.

Allied Force Headquarters in North Africa announced the destruction during the

month of 496 enemy aircraft for the loss of 190 Allied aircraft.

In India and Burma no enemy aircraft were destroyed. Five Allied aircraft were lost.

## ENCOUNTER OVER THE ATLANTIC

By RAFAL KLINGA.

(Translated by J. Bartelski.)

This story is dedicated to the intrepid crew of "E" for Ela of the Polish Squadron of "Silesia Land" defending the Atlantic routes. (R.K.)

In the Operations Room of a Polish Coastal Command Squadron on one of the English stations somewhere in England six Polish airmen were about to finish their flight planning. Although a flight plan is usually worked out by the navigator and pilot, it was the custom that the whole crew should assist.

"Flight plan correctly prepared—it is like half of the trip almost done," used to say the navigator, widely known as the "father of the crew." He believed that a properly prepared flight plan not only makes the rest of the crew trust him, but clears

their mind of all unnecessary worries and gives them confidence in difficult moments.

The crew of the Wellington "E" for Ela consisted of five youngsters: Flying Officer First Pilot T—s, Sergt. K. Z— (second pilot), Sergt. P. Z— (wireless operator), Sergts. K. F— and M. W— (air gunners). There was one "old boy," Flight Lieutenant M. W— (navigator), who, as a volunteer, took part in the 1918-20. campaign and flew as an observer in Poland for over seventeen years. After his arrival in England he passed through the necessary refresher courses in the English Air Observers' Schools, and already had twenty-four operational sorties in the Coastal Command to his credit.

In spite of differences in ages, classes and temperament the whole crew worked exceptionally well together. On the ground, as in the air, they have been inspired by

the spirit of comradeship and co-operation.

The subject of general jokes of the crew usually was their rear-gunner, Frank K---, a young, small, nice-looking boy. But Frank always paid them back for it each one separately, and especially in female company. In the morning this was often the theme of bitter though friendly complaints of the wireless operator, P. Z---, to the navigator, Sergt. K. Z-, describing his adventures of the previous evening with the "baby of the crew," when Frank used to complain about the faithlessness of women.

The members of the crew of "E" for Ela were seen many times outside the camp. Days, months spent in different circumstances knit them together as one family, but above all they were united by their devotion to flying and the desire for revenge for September, 1939, and their depredated country.

During briefing they had been warned about the presence of new long-range Ju. 88 fighters. Only the day before a Wellington with Czechs and a Whitley with English crew had been shot down over the area where "E" for Ela was going on anti-

submarine patrol.

The "Old Boy" just got up from his table. Speed, height and course were worked out in accordance with the pilot's instructions. They decided to fly at 2,000 ft., so that in case of attack by a fighter they could easily descend to sea-level to be safe from attack from below.

The weather forecast stated: "Cloud base at 1,500 to 2,000 ft. for main part of

the flight.

"E" for Ela is ready to take off. On the front of the fuselage she bears a redwhite chess-board consisting of only two white and two red squares. This is the emblem of the Polish Air Force. Permission to take off by R/T is granted. Flight Sergeant K. W-, in charge of Servicing Flight, and the ground crew remain on their post till the last moment. This is their aircraft, too, for upon their efforts and care depend the lives of their flying friends. How much the ground crew have realized the importance of proper maintenance is shown not only by twenty-four faultless operations of "E" for ELA but often by waiting long hours for the plane's safe return, even when they were not on duty.

The Navigator checks his crew: "All ready."

0930. "E" for Ela is airborne. Circuit over the aerodrome.

0935. First course set. This distance is about 140 miles to fly; then Ela alters course to position "A," 150 miles away. Position "A" is reached and course changed to position "X." Distance to fly, 350 miles.

Ela is on her way. Around her, seas and skies. In vain the gunner's eyes try to find something; infinitely tiring when you cannot focus your eyes. This same monotony lasts for hours and even the few fishermen's boats appearing from time to time do not lessen it.

The temperature rises when Ela approaches the coast of Spain. Soon land is visible and a range of hills appears. The spell of the beautiful hilly coast and strong southern sunshine stirs one's imagination and makes one dream of things unconnected with the immediate task on hand: anti-submarine patrol. These dreams belong to more pleasant things: peace, Spanish wine, songs and charming señoritas with dark hair and black eyes, making one forget that thousands of human beings are killed every day in this war.

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Ju. 88's began the attack again, but this time from the rear. The rear gunner, with all his skill, opened fire at very close range and it was obvious that each of the attackers was hit.

One of the Ju. 88's stayed well behind and did not take any part in the action. He was probably Section Commander and kept a look-out for R.A.F. long-range fighters. "I thought," said the navigator of Ela later, "that he would wait until his pupils

finished their play with our Wellington, then the master would come in and polish us off."

But after the last attack the German aeroplanes broke away and even resigned from the convenient position for attack. Far away appeared a layer of cloud. Ela's pilot opened his throttles fully to reach cover as soon as possible. At 1750, after 8 hours 20 minutes' flight, Wellington "E" for Ela reached England and landed on the nearest aerodrome with its last drops of fuel.

The aircraft was in a dreadful state—petrol was leaking all the time after it was hit and the auxiliary oil tank connection was broken. In the petrol tank there was a hole 6 in. by 6 in. and three smaller ones. Fabric to the extent of 3 ft. by 6 ft. was shot away from the top of the main plane, and one of the ribs was damaged. Actually there was no part of the plane intact: airscrew spinner three hits, starboard engine nacelle three hits, fuselage (starboard side) ten holes, port side four holes, bottom three holes and top one hole. The tail received six hits, the astro-dome one, and the trailing aerial beads were shot away. Altogether thirty-eight hits from machine guns and one from cannon. None of the crew was injured. The farewell by the crew with "E" for Ela was very sad. She served them so splendidly to the last.

News of this famous exploit soon spread around all the aerodromes in England. The O.C. of the Coastal Command sent the following message to the Polish Squadron of Silesia Land: "Please congratulate the captain of the Wellington aircraft 'E' for Ela and the crew for the successful results in combat against six Ju. 88's on 16th September, 1942. The whole crew showed a fine fighting spirit and will against over-

whelming odds, shot down one for certain and probably two others."

Exactly a month later four members of this crew were reported to have had another combat over the Atlantic, but this time failed to return.

# TRANSPORT PILOTS DELIVER THE GOODS

. Despite the obvious complications imposed by war, R.A.F. Transport Command is now running airlines in almost every part of the world-safely, accurately and on time. The pilots are the product of a system of training more exacting and far more costly than a normal university course.

Briefly, the transport pilot's job is to get his aircraft to its destination safely, accurately and on time, and it looks easy when you see him make a perfect landing dead on time after a two-thousand-mile run. It is the case of precise airmanship, organization

and perfect co-ordination.

Though there may be a gale in mid-Atlantic, and he knows it, the pilot must be prepared to face and beat it. His airfield may have a covering of ten feet of snow in winter and his aircraft may have to be serviced at thirty degrees below zero. Or he may have a tropical run. He may be as familiar with Piccadilly as with Kas'r-el-nil. For relaxation between jumps he may use a punt on the Thames or a houseboat on the Nile. It may be "Good morning" on Sherbrooke in Montreal, and next day "Good morning " in Britain.

The transport pilot may be carrying blood to be used for transfusion to doctors working close up to the line. He may carry reinforcements, ammunition, supplies, food, water. He may help in the movement of squadrons and of troops, or be one of those who made air superiority possible in the Middle East and North Africa and so

hastened the defeat of the Axis.

His reliability may have turned threatened defeat into victory—and this is no figure of speech. In one engagement a transport pilot tipped the scales by delivering sorely needed anti-tank ammunition on time and in time. Only air transport could have done it.

During battles in the Middle East transport aircraft carried to hospital men who must otherwise have been lost.

When the Air Force Signals were putting the Western Desert, Tripoli and Tunisia on the telephone, to link all arms for immediate co-operation, an S.O.S. to Transport brought key equipment from England in twenty-four hours. Communications were established, forward squadrons and ground forces were able to get the full picture, and advantage could be taken of every favourable development.

In one month 7,000 passengers were carried, and nearly 1,000 casualties removed

to hospital for treatment.

Air transport cut the route to Egypt by 6,000 miles.

Transport Command is operational and its pilots may, and often do, have history at their controls as they take Ministers of the Crown to the battle fronts, or bring defeated Axis Generals away. No ordinary life and no ordinary men.

Some say the transport pilot is born and not made. Certainly the ideal standard is exacting. A man must be of strong and disciplined character, alert, decisive, reliable,

self-controlled and confident, of cool courage and resource.

Coming from civil life, the candidate is provisionally classified by an examining board and sent to a reception centre to learn drill and ground subjects, which include mathematics and airmanship. He may have some elementary navigation before he goes to an initial training wing, where he gets more, plus training in elementary meteorology, signals, armament, hygiene, Air Force law, administration, aircraft recognition, airmanship and the principles of flight.

The first definite hurdle comes at an elementary flying training school in Great Britain, where he must learn to fly solo in a specified time. If he cannot make the grade he is reclassified. If he passes he moves across to Canada for dual and solo flying on single-engined elementary trainers. New subjects include aerobatics, elementary engineering and rigging, and airmanship (which means airmindedness both in the air and on the ground) is driven in until it becomes a habit, a conscious habit.

At the next school-studies are stepped up. On twin-engined trainers the future pilot does day and night flying, learning to handle modern service aircraft with accuracy and safety. Ground subjects become harder. He can grasp the main points of a weather chart and, having learned to call the stars by name, makes them tell him where he is.

Then, back in Britain, he is acclimatized. He gets the feel of European flying and overcomes the sense of geographical compression. No wide open spaces with solitary landmarks that can hardly be mistaken, but a crowded countryside and strange weather,

with cross-country and night cross-country flying in the black-out.

The decision is taken. Is the pilot for Transport Command? If he is, then he is "crewed up" at a transport operational training unit. He ceases to be a lone individual and becomes part of a corporate body. Operational types of aircraft are used. The courses are still more advanced. Yet more subjects are added, including necessary medical knowledge, the care of sick and wounded and care of passengers. And some international law, transport organization and freight practice, and training begin to round off to a finish.

Practice flights with load build up ability to load and trim the aircraft. Safety procedure and precautions, aircraft and ship recognition, evasive action, the use of oxygen and modern navigational aids put on the final polish, and the crew, complete,

goes from the O.T.U. to whatever operations are required.

In a day or two they may be feeding a battle front or saving a hundred lives that would have been lost without air transport, saving them by the speed and certainty of their operation.

The world is theirs, and the future; more theirs, perhaps, than anybodys.

## PANTELLARIA COST TO ALLIES ABOUT 40 AIRMEN

For the first time in history a heavily fortified territory of the greatest military value has surrendered solely as the result of bombardment. Practically the whole of this bombardment was from the air, supported on occasions by the fire of warships.

The fortress island of Pantellaria—compared by Axis propaganda with Gibraltar and Malta—and of the greatest strategic significance, has been neutralized and occupied by

the Allies at a total cost of some forty airmen.

These casualties, the only ones suffered in the operations up to the surrender, were the crews of the aircraft which the Allies lost in the incessant bombardment of the island.

The defences of Pantellaria were most formidable and were rendered the more intense in view of the small area to be defended. They received almost incessant bombardment for seventeen out of the twenty-four days and nights since 18th May.

Situated in the middle of the Sicilian Narrows and providing an air base, long-range artillery and deep-water anchorage, the significance of Pantellaria is obvious. One of the most important features in its capture by the Allies is the fact that from its airfield Allied fighters can now provide cover to operations over the western half of Sicily Fighter cover over the Eastern half of Sicily has always been provided from Malta. Thus the whole of Sicily is now within range of Allied fighters as well as bombers.

The most remarkable feature of the twenty-four days' campaign against Pantellaria, in view of its great importance to Italy and to Axis strategy, is the negligible opposition which Allied aircraft have all along experienced. Out of more than 3,000 bomber and fighter-bomber sorties against Pantellaria, less than twenty aircraft failed to return. In other words, the defences of Pantellaria itself and the entire resources of Germany and Italy in this theatre were only able to inflict a loss of about one aircraft out of every 150 which bombarded this important island fortress.

# R.A.F. REGIMENT'S PART IN TUNISIAN CAMPAIGN

MEN of the R.A.F. Regiment played a vital part in the final stages of the Tunisian campaign. They were among the first British troops to enter Bizerta and to pass through Tunis, following the armoured forces into the city.

The regiment captured more than 3,000 Axis prisoners and took a vast quantity of valuable enemy equipment. Their job was to press forward, sometimes in advance of army units, seize enemy airfields and prevent the retreating Axis forces from

destroying aircraft, operations rooms, and equipment.

One group headed for Tunis and the flight detailed to capture the landing ground at La Marsa was guided by a German pilot. Near the runway a tank officer advised them to go no farther as snipers were still firing from the olive groves, but the speed with which the flight commander led in his men took the enemy by surprise.

Five hundred prisoners were taken and many vehicles and much equipment captured

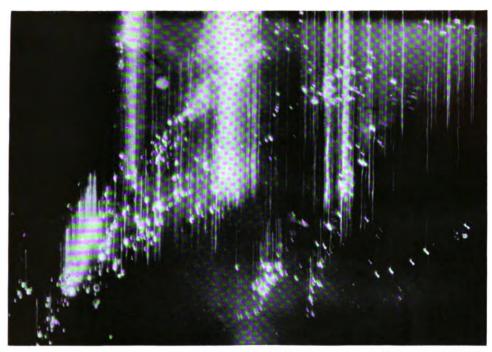
undamaged.

A second flight received orders to push into the Cap Bon Peninsula to seize enemy landing grounds near Soliman and Korbus. The armoured cars of the squadron showed great dash and initiative, and when the landing grounds were in our hands many aircraft

were captured and numerous prisoners taken.

One flight came under mortar and machine-gun fire from a hill. The officer commanding attacked and took the hill and 200 prisoners. The detachment rushed on opening fire at figures moving among the trees, and the enemy fled to the hills. Then they occupied a farm which had been used as an enemy headquarters, and the speed with which this place was occupied saved much transport, new engines, mobile workshops, medical stores, food and petrol.

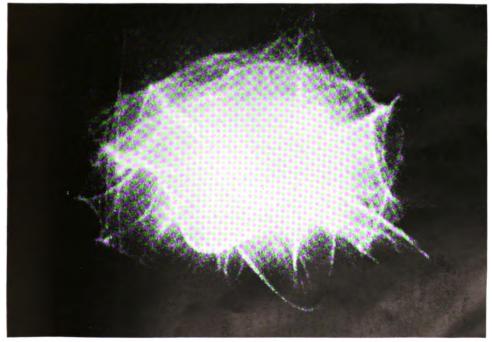




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EXPOSURE MADE WHEN R.A.F. BOMBERS WERE ATTACKING WUPPERTAL.

The many "bubbles" of light are caused by burning incendiaries, and the broader streaks of light indicate where fires are developing.



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ONE OF THE MOST REMARKABLE NIGHT PHOTOS OF THE WAR,

This weird pattern of light—rather like an illuminated spider-web—was caused by a large incendiary bomb which was hit by a A.A. shell soon after it was released from a R.A.F. bomber over Essen, and fell a flaming mass towards the target.



[Crown Copyright reserved]
GIANT SMOKE CLOUDS FROM FIRES IN DUSSELDORF, ILLUMINATED BY A PHOTO FLASH-BOMB.
The wavy light-trails are caused by burning incendiaries and fires.



Bottom centre: FLASH OF A 4,000-lb. BOMB BURST. Bottom right corner: INCENDIARIES BURNING.
Right centre edge: A FIRE.

The other two flashes in the right half of the picture are anti-aircraft gun flashes.

A corporal section-leader reconnoitring alone attacked, single-handed, a machine-gun post which was firing on a British patrol. He captured the gun and six N.C.Os. of the Luftwaffe. Another group of the regiment went to Ferryville, Bizerta and Sidi Ahmed airfield, and with American and French troops pushed on to the north coast at Cap Blanc, capturing many prisoners and much equipment.

One group went right through to El Aouina, the main airfield of Tunis, and later

they took La Sebala airfield.

## FIGHTER SWEEP

By SQUADRON LEADER H. R. ALLEN, D.F.C., R.A.F.

The briefing was over; take-off was to be in half an hour's time. I collected my flying kit from the pilots' room and, slinging my parachute—great heavy thing that it is—on my shoulders, I made my way to my aeroplane. Old N for nuts was looking very smooth and sleek with the morning sun gleaming on her highly polished wings. I cannot even now, after more than 800 hours flown on the type, look at a Spitfire without feeling something of the thrill that I got when I first saw one several years ago. They say that familiarity breeds contempt; it certainly does not as far as my beloved Spitfires are concerned.

I heaved myself up on to the wing and lifted my parachute on to the pilot's seat. A quick check over the instruments to see that the fuel tanks were full, the hydraulic system was functioning properly and the engine warm, and I jumped down and walked slowly back to the hut. The weather looked a little uncertain, I thought, for the sky was filled with those huge anvil-shaped clouds that the countryman knows so well. Cumulus Nimbus we call them and they are treacherous enough for us aviators, filled as they are with electricity, ice, snow and all sorts of unpleasantness. I hoped that the weather would not become too bad for us to find our way back to base when the show was finished; I do not particularly like having to spend odd nights in strange messes, for one never has a toothbrush of a morning. As I walked into the pilots' hut my bull-pup "Crippen" lifted a weary head from the floor where he was lying in front of the stove, grinned at me in a dirty sort of way and wagged his tail lazily once or twice. I kicked him gently in the ribs—a form of endearment that we mutually recognized. I had had old "Crippen" since he was a tiny, obstinate, tough, bull-headed pup of eight weeks. I firmly believe that he brings me luck—hope so, anyway.

The rest of the squadron's pilots were donning their flying kit and chattering noisily in the process; they all looked rather young and irresponsible, just like a troop of boy

scouts preparing for a summer camp, I thought.

I removed my collar and tie and wrapped a long silk scarf round my neck, replaced my shoes with flying boots and, picking up my Mae West, walked towards my aircraft, "Crippen" shambling along at my heels. The old feeling of uncertainty which I always feel on these occasions plucked at my stomach muscles. I had completed a large number of flights over enemy territory, but this feeling always had been with me before take-off. I suppose it is similar to the feelings of a boxer before he enters the ring for a big match, or a batsman going out to open an innings; only in the case of a fighting man entering the field of battle there is something more than a money prize or a season's colours at stake. Under these conditions one wonders, very naturally, what lies in store for one. It is said that fatalism is a lazy philosophy; be that as it may it is the only philosophy possible for the warrior fighting a war.

It is very noticeable how, when the future is so uncertain, the little ordinary things of life take on a newer and more pleasing aspect. It is very true that man takes everything for granted and fails to enjoy life at the moment of living it. Everything looks so much happier in retrospect to the average man; the man who is really happy—and they are so few—is the man who can see and appreciate the beauty of life at the

moment of living it.

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"White plates and cups, clean-gleaming, Ringed with blue lines; and feathery faery dust; Wet roofs, beneath the lamplight . . ."

Thus did Rupert Brooke express similar feelings in a fit of nostalgia. He, too, admitted his failure to appreciate the simple beauty of ordinary things except in retrospect.

As I climbed into the cockpit of my aircraft I felt the warmth of the sun on my face; I noticed the placid greenness of the grass all around me and the beautiful dark and brown of the weeds in the distance, and I felt a wave of remorse sweep over me that it took a moment such as this to awake my appreciation of the beauty of nature.

I slid down on to my parachute and strapped myself tightly into my aeroplane; then, donning the helmet and goggles which my rigger handed to me, I closed the door of the machine, tested the oxygen supply, checked the gunsights and sat quiet with my eyes on the wing-leader's aircraft. As I saw his airscrew rotate as he started his engine, I too pressed my starter-button; my airscrew revolved, slowly at first and then, as the engine fired, spluttered round with a roar, blowing the burnt gases in a smoky cloud back from the exhausts. Opening the throttle I taxied forward to where the wing leader had stopped his aircraft, and coming up on his right I turned into wind and waited for him to move. When the whole squadron were in position to take off he waved his hand and opened his throttle. I followed suit and, jockeying on the rudder and throttle, kept abreast of his. The ground slid away below us and I saw the undercarriage of the leader's machine slowly retract into the wings. We gained a bit of height, circled the aerodrome once to allow everyone to get into position and then swung on to a course which was to take us to our objective.

The rest of the formation were nicely in position as we flew steadily onwards, climbing as we did so. We crossed the English coast at about 5,000 feet and I watched the cold greyness of the English Channel take the place of good, old, solid England with mixed feelings. The tense feeling had died a natural death by now, there was so much else to think about. Two huge banks of cloud stood majestically in front of us as we flew on; they left a seemingly minute valley in between through which we would have to pass.

We passed into this valley, and as I looked back and saw our tiny formation against the towering background of the clouds I felt amazed at the audacity of man for daring to perform and discover the miracle of flight. Audacity and versatility are perhaps the two main qualities that make the human animal so vastly superior to other forms of life; those virtues combined with a capacity for insatiable desire and, as a great man once said, the ability to laugh, have turned our cave-man ancestors into our modern citizens. These and other thoughts passed through my mind as we climbed on through this rift in the clouds, on into the sudden blinding sunshine beyond. We emerged from cloud at about 15,000 feet and I noticed the quick glitter of hoar frost forming on my hood due to the reduced temperature. I turned my oxygen supply on to greater strength and peered ahead in the direction of France. There where the cloud finished I saw the vast expanse of land that is part of the troublesome, historic Continent of Europe. There seemed to be a shadow over the fair land of France; caused in fact by a cloud formation it seemed to symbolize the shadow of the invader. We were just about over the coast by this time and although it was obscured by cloud the waiting Hun below apparently decided to try his luck for I saw bursts of flak about a mile away to our right.

The whole formation began to weave at this point for we had now entered into the area where we could expect enemy fighters to be lying in wait, and it is most important to be able to see in all three dimensions, which is only possible by weaving. I searched the sky in all directions but could see no sign of any other aircraft; looking down I could make out the mouth of the Somme with the thin lines of canals going inland from it; nearby there were railway lines travelling in all directions but not a train in sight anywhere; the thin pencil lines of main roads were devoid of traffic—all France seemed asleep.

Suddenly a voice called over the radio: "Look out-flak!" and simultaneously

black balls of smoke appeared all around us as if tossed by a giant hand. We all swerved and altered course and height to put the gunners off their aim; that was too

close to be funny—perhaps all of France was not asleep after all!

All the time I was searching the skies for any signs of hostile aircraft, but there seemed to be nothing about. We had by this time penetrated to a depth of thirty miles or so inland, which was far enough for our purpose, and the wing leader turned back towards the coast. The sun was behind us as we swept along on our new course, and everyone kept a very wary eye in its direction for the wily Hun usually works his way up sun before he dares to attack. On casting one of my very frequent glances into the sun I noticed a faint wisp of vapour; it was the smoke trail left by a strange aircraft. I turned on my transmitter and warned the wing leader that there were strange aircraft in that direction and that I thought that they were hostile. No sooner had the words left my mouth before about a dozen aeroplanes suddenly were seen diving on us at a terrific speed. We all split up to ward off this attack and in a second the sky was a mass of whirling aircraft. I turned as violently as I could and, pulling back on the stick, ruddered round, almost blacking out as I did so. I saw the dark green camouflage of a Focke Wulf 190 flash across my sights hot on the trail of a Spitfire; behind him hurtled another Spitfire, guns blazing and smoke pouring from his wings as his guns fired. The 190 suddenly belched white smoke and flicked over on to its back; then, leaving a long column of smoke lazily curling behind, it spun down at a terrible speed. As I took all this in I suddenly spotted another 190 below me and to my right. Opening up my throttle I turned over and down towards it. The German pilot had apparently not seen me for he continued steadily on his course. I closed as rapidly as I could and just as I was getting into range and about to press the firing button I saw out of the corner of my eye sudden glowing red and yellow streaks flashing past close to me on my right. Quick as light I instinctively jammed my stick hard over and, hauling back on it, whirled round in tight climbing turn. As I did so I was thrust down in my seat, my vision left me for a moment but I still retained consciousness. Easing off my evasive turn I glanced rapidly behind. Yes! by God! Banked over in a vertical turn and only about 300 yards behind me I saw the ominous shape of a F.W. 190. I had been lucky—he had missed. I pulled my aircraft round harder still in an effort to reverse the position and get on to his tail, and for a few brief moments we chased each other round in a whirling dogfight. Then as he saw that I was obviously gaining on him the German pilot suddenly flicked over and barrelled down vertically into a nearby bank of cloud. I got in a very quick burst as he did so but probably missed, for he vanished into cloud apparently unscathed. I climbed quickly up to the approximate height of our own formation and, seeing them in the distance, headed for them at full throttle and with many a glance behind.. I found that I was sweating with exertion and felt quite limp as the reaction set in. It had been a frightening moment and my mouth was dry as a bone. I caught up with the scattered formation just as they crossed the French coast on a homeward course, just in time to receive the benefit of an erratic burst of flak from the German gunners below. We left France in a long shallow dive and continued it across the Channel.

England was looking very bright and sunny I thought as we swept across our own coasts again. On the railways trains could be seen; on the roads bright red buses and private cars made a strange contrast to what we had just seen over in that dark Continent of Europe. And as I leapt from the wing of my aircraft after landing and taxi-ing in to dispersal and saw old "Crippen" lurch over to greet me, the grass seemed very green, the sun on my face felt very warm and soothing, the woods in the distance seemed very brown and beautiful.

Life was indeed good!

## KNIGHT OF THE ROAD

By L.A.C. TREASURE.

"Driver Motor Transport." Those three words probably mean very little to the average reader, but in the R.A.F. they describe a trade. Driving for the Services is more comprehensive than driving for civilian contractors and offers a man many opportunities. For instance, the life of a Service driver is full of variety. He must be able to drive all types of vehicles, from light cars to the heaviest goods lorry, from the motor-cycle to an eight-wheeler, perhaps a tractor, a mobile crane or an armoured car. Can you visualize a Service Driver? To-day, operating a tractor on an aerodrome, trailing bombs; to-morrow seated at the wheel of the camp bus; next week collecting or delivering heavy equipment from or to some far-distant port or maintenance unit. There are no time-tables or regulated routes to which he must work, day after day, year after year; there are exceptions but faces are always changing.

Dull? I should say not! This is my trade and my personal experiences are many. It is not intended to relate in detail the life of a driver, whether in the fighting zone or in Home Counties, neither do I wish to paint a pretty or dreary picture. In effect,

I have an hour to spare and am inclined to record my reflections.

Being a driver has caused me many a headache, and sometimes I feel that I could be of more service to my Country in some other manner. To feel thus is my privilege, but circumstances do not always allow a man to act upon his desires. I am thus content to make the most of my war training. I am not alone in my thoughts, many think in a similar manner. The armourer has an ambition to be a flight mechanic, a carpenter believes he is wasting his time. I know through personal contact. These men are conversant with their particular trade and, if honest with themselves, will acknowledge that their job has its advantages. Of course, each man is primarily a soldier. The driver, the butcher, the instrument maker, all are taught to fight and to shoot straight.

However, my thoughts are chiefly concerned with drivers, especially drivers in convoy, so relax and come with me on a Mystery Tour. We shall actually be part of a convoy, destination and nature secret, but that will not prevent us from having a

day in the country.

I start the day with mixed feelings and curse at everything in general. It is a very early morning call, and for the next half-hour dressing, shaving and eating is a mechanical performance. I will not dwell upon such details as collecting our food rations, small kit necessary for indefinite travel, and the march to the car park with the aid of a torch. I will let you imagine the atmosphere of the car park as each driver starts his vehicle, the instructions and curses and, lastly, the despatch riders arranging the vehicles into convoy order.

The convoy moves off a little before dawn and consists of a specified number of vehicles. My vehicle is a coach almost at the tail-end. Behind me are three more coaches; in front another five and then a series of lorries capable of carrying light or heavy equipment. The wheels are turning, and as dawn breaks the distance between each vehicle is widened to comply with our orders. The convoy slowly winds its way

towards the first objective.

It is a fine morning, and as the light of day gradually appears I notice how the tones of the countryside become more pronounced, like a large photographic print in process of development. The fields, covered with a low-lying mist, resemble a gigantic bed and my first impulse is to yell "Wakee, wakee," thinking scornfully of those still asleep. On we travel and this early morning appearance vanishes. The varied travellers of the road are making their presence felt as the faster traffic overtakes each vehicle in the convoy. My patience is sorely tried and the convoy is split into smaller groups. Now and then a despatch rider flashes by, whilst trying to bring the pieces together and prevent them from taking the wrong road. On and on through flat to hilly country, good roads to rough roads, some torn by the tracks of many tanks, whilst here and there a pretty village visually unchanged.

The vehicles are slowly coming to a halt and, watching the one in front, I pull up. hugging the road edge to give passing traffic as much of the road as possible. The

despatch rider whirls by giving a vicious signal; my legs feel cramped. Here we group together, voice and receive complaints, for it is several hours since we had a chat. Then, mobbing the duty van, we clamour for a nibble at the day's rations. The rations never seem sufficient, but do not ask for any explanation or proof, because all I can show is an increase in my weight card.

We do not stop long and after an hour's driving we eventually arrive at one of our many camps, our first objective. Here lorries are quickly loaded with equipment, ammunition and spare parts. The coaches fill with R.A.F. personnel of every branch, from the air crews to men who perform the general duties of the camp. And what

an assorted crowd in my coach!

Here and there a man curses. He has grown to like his present surroundings. Perhaps the food is good, maybe he lives nearby. Seated are a few in a pensive mood and they gaze through the windows seeing nothing. I would not be surprised if their thoughts were centred around a pretty girl from the neighbouring village, a village which they now know by heart. But I could think of many more reasons. Several men are in a raucous state. They are glad to be going, for it means something new, and, accompanied by a persevering banjoist, they sing their way out. We pass through the gates and instantly a card school is formed upon the back seat. A driver will not intentionally see these things, and is only concerned when some practical joker breaks a window or takes the interior fittings apart, although in reality he sees more than any man.

The convoy is now travelling in another direction and as the afternoon passes to evening we approach and pass over a mountain range. What splendour! Here and there amongst the hills a half-hidden village, and from the heights spreads a panorama of fields and towns, giving a picture which a photograph could not express. We descend to the valley and flow through the lower country. A town here and there with narrow winding streets which prove a nightmare if cyclists are daring and

pedestrians careless.

We arrive at our destination; at least, it should be final for the convoy and drivers. Here I hope to spend an evening amongst new surroundings, new faces, perhaps in a quaint village pub which may have retained its country atmosphere. Just now, however,

there is work to be done.

The convoy is quickly dispersed and unloaded, whilst our passengers assist where possible. On the floor of my now empty coach are the remains of a picnic! Several newspapers—The Daily Mail and The Daily Mirror—breadcrumbs and a piece of cheese, cigarette packets by the dozen, two detective novels and a lurid love story. Very

thoughtful of my passing friends.

The vehicles are finally unloaded, but I am to be disappointed in my quest for a village pub. Orders are received, demanding our immediate return to camp. So amidst strong curses we again set the wheels in motion. It is now dark. In fact a black starless night. Can you imagine a driver at night in convoy? All that can be seen is the faint outline of the road edge, a few white lines in the middle of the road, and a tiny red tail-light somewhere in front. That white line is a driver's guiding angel. I travel with all my senses alert, but that red tail-light has a mesmerising effect. Sometimes it disappears. Sometimes it is too near for comfort. Gradually my eyes feel heavy. The eyelids go on strike and automatically drop, so I throw open all possible windows, even the windscreen. My reward is a cold blast of air, which props open my eyes and chills the spine. We move slowly homewards and arrive at our familiar car park two hours after midnight. It has been a long day but I shall not see a bed for another hour. From the same darkness come the same curses and insults, as a dozen drivers guide a friend into position.

Your mystery tour is over now and I will seek the warmth of my blankets—and peace. "Peace"—a little word, but to-day I have seen those old favourite week-end haunts. It is our England as we knew it, with the freedom to think and act sanely.

To-day we are fighting to keep it sane.

To-day a new body of men have moved forward. Where? To north, east, south and west, but they will always require transport and many more drivers. Think before you waste that gallon of petrol or increase the wear on those tyres. If you must drive, the R.A.F. can find a place for you. Yes, and you!

# THREE YEARS OF NIGHT BOMBING BY WELLINGTONS

In a message of congratulation during July to aircrews in North Africa, Major-General James Doolittle singled out the Wellingtons for special mention. He described them

as "an inspiration to all."

The Wellington group which came up from the desert as the Eighth Army advanced into Tunisia has indeed a fine record of uninterrupted service. No fewer than 300 decorations have been awarded in the group. Since El Alamein in October, 1942, the Wellingtons have made 15,000 operational sorties and dropped 20,000 tons of bombs.

But the history of the Wellingtons in North Africa goes back much farther. When Mussolini declared war on the Allies on 10th June, 1940, and ordered Graziani to advance into Egypt, there were then no Wellingtons to oppose him, and what was to become the first Wellington squadron in the Middle East command was still equipped with Valencias. Wellingtons, then our heaviest bomber, were urgently needed if Graziani's forces were to be attacked by night as well as day and foiled in their intention.

England, threatened by air attack and expecting invasion, could ill-afford to spare aircraft to go overseas, but at all costs Egypt, and with it Iraq and the Persian oilfields beyond, had to be defended. In September the first Wellingtons were delivered to the Valencia squadron, and this squadron became a unit of the wing from which in turn

the present Wellington group was formed.

The wing's aircraft were based on the Suez Canal airfields, and from there the first Wellington sorties were made against Bardia in the west and the Dodecanese Islands in the north. Almost at once there was trouble with the Wellingtons, now operating in a theatre for which they were never built. The ground engineers worked like demons to overcome the difficulties, and to the hundred and one troubles that arose they found a hundred and one answers.

In the winter of 1940, General Wavell advanced into Cyrenaica towards Tobruk and Benghazi, which were to fall before January, 1941, was out. During this period the Wellington's main targets were the Italian air and sea bases at El Adem, Tobruk,

Derna, Barce and Benghazi.

On 24th October the Italians invaded Greece. In the first week of November a detachment of the Wellingtons' squadron landed at Eleusis airfield. Their targets were Valona, Duazzo and later Brindisi and Bari. Until February, 1941, the Wellingtons remained in Greece, operating from the only two airfields.

During this period the wing was serving both General Metaxa's Greek army in the Epirus and General Wavell's army in Cyrenaica, and before long the embarrassment of operating in both Greece and Africa was increased by the arrival of the Afrika Korps

led by Rommel.

The Wellingtons first met the Afrika Korps at Agheila; when switched from strategic to tactical bombing, they sought out Rommel's advancing armour and destroyed it. The campaign continued with the Wellingtons harassing the enemy as he slowly advanced. Trouble started in Iraq at this time and on 28th April revolt broke out. At 8 p.m.

Trouble started in Iraq at this time and on 28th April revolt broke out. At 8 p.m. that day the Wellington squadron was ordered to Shaiba to help the army to suppress the revolt. By the middle of May the revolt was virtually over and the squadrons flew back to the desert.

Tobruk was still held and its long siege had begun. But Crete was soon to be involved and meanwhile the Wellingtons flew urgently needed supplies there. When the enemy arrived the Wellingtons gave all the support they could to our overwhelmed ground forces in the island.

The occupation of Syria then became our immediate task—an unhappy but fortunately brisk campaign in which the wing were again called upon for night bombing. In

July resistance ceased.

For months now warfare in the desert had been quiescent. Then came Rommel's offensive and once again night-bombing Wellingtons had to be turned to tactical operations. The Afrika Korps' advance came within fifty miles of Alexandria and Mussolini was at Mersa Matruh waiting for his triumphal entry into Alexandria and Cairo. The Wellingtons were out nightly on double sorties, and more and more they were called

on to find and harass the advancing transport and armour. They made an effort which was one of the reasons why Rommel did not get through.

By the end of July, Rommel was at El Alamein preparing for his final thrust. The Wellingtons were put on to the bombing of Tobruk and until the end of October they were kept on this almost solitary target where Rommels supplies were arriving.

In October the group prepared for the third and last African campaign. On 24th October, General Montgomery attacked, and while the battle of El Alamein was fought the Wellingtons were out over the Axis lines bombing gun positions and troops. Once again they were being used tactically. El Alamein was won and Rommel fell back on Mersa Matruh. After him at night went the Wellingtons, taking over from the fighters and light bombers of the Western Desert Air Force when they left off each evening, and with 4,000 lb. block busters the Wellingtons plastered the road to Sollum.

But as the army advanced night bombing in the desert became less urgent than the bombing of Sicilian ports whence reinforcements and supplies were coming to aid the enemy's final effort to hold Tunisia. A detachment of Wellingtons went off to Malta

for this special task.

When their job in Africa was done they swung straight into the battle for the Italian islands of Pantellaria, Lampedusa and Sicily. Airfields in Sicily and Pantellaria, docks at Messina, Palermo, Catania, Licata and Naples were bombed, bombed, and bombed again not only by the desert Wellingtons but by the Wellington squadrons which had joined them after operating in North-West Africa almost from the first days of the landing at Algiers. To them was added a formidable force of R.C.A.F. Wellingtons, and nightly in the fine weather of a Mediterranean summer the sky became alive with "Wimpeys."

Three years of night bombing by the Wellingtons have contributed in no small measure to the irreparable reverse suffered by the Duce and his armies and those of

Rommel and his German Afrika Korps.

# ON PREJUDICES

By WILLIAM H. PICK.

One need not be ashamed for having forgotten who was the author of the couplet—
"I do not like you, Doctor Fell;
The reason why I cannot tell."

—but the jingle recalls to us that we have, indeed, so many likes and dislikes, the reasons why for which we cannot tell. And these likes and dislikes, held without our being able to give adequate reasons for the holding, constitute the prejudices which form an appreciable part of our mental make-up and which determine to a large extent how we stand in the eyes of those who behold us. In his forthright and comprehensive way, Bernard Shaw slams the door hard on any of us who fain would believe that we have no lot in the common failing by declaring roundly that we all—all—are "animated sacks of prejudices" and salts the wound to our vanity by further declaring that we call our prejudices common sense. And when Shaw speaks, 'tis hard to confute.

Whence come these prejudices? The late W. S. Gilbert who, though a professional

Whence come these prejudices? The late W. S. Gilbert who, though a professional humorist, yet said, as is the way of professional humorists, very many very wise things, pushed that origin a long way back and also very considerately took the responsibility off our hands by informing us that every little boy or girl born into the world is born "either a little Conservative or a little Liberal." But what may be attributed to heredity and what may not is a thorny subject upon which there is little agreement, and most people prefer not to put the origin of human prejudices into the keeping of heredity but to find it in the early associations in family and in group, in school and in playground, the early associations in those tender years up to and including the teens when the mind is "wax to receive" and "marble to retain." And in this connection there may be recalled the dictum of the late William James, the American psychologist, that we are all old fogeys by the time we reach twenty-five years of age, our ideas being by

then formed or, at least, existing in embryo. We need not perhaps entirely commit ourselves to belief in William James, nor need Youth preen itself too much, but there

is a good deal, methinks, in his disconcerting dictum.

There are the big prejudices and the little prejudices. The big prejudices may be defined as those concerned with general outlooks on life and living and thus determining general lines of thought and of action. These are often cherished beliefs which we have, as the saying is, "imbibed with our mother's milk"; others are the assumptions of our particular class and culture. We very often question neither the cherished beliefs nor the particular assumptions, and if we were critically examined upon their validity we should probably not be able to adduce sound reasons why we held them, but as to their directing influence on our ways there can be little or no doubt. almost certainly inclined greatly to over-estimate the fraction of our thought which is the result of our own independent thinking, and the point that prejudices are a serious deterrent to sound deduction is such an obvious one that it need not be laboured. are creatures of our early environment to a very large extent, and the practical matter is that it is of little avail to rail at a human being for holding those cherished beliefs and particular assumptions: the mind in age can only with great difficulty rid itself of those impressions which it gained in youth when it was "marble to retain." nition of this would perhaps save much heat in discussion, and those of us who would call our opponents hard names on this score should temper our desires by the reflection that we, too, are as other men and that we, too, willy-nilly, are "sacks of prejudices" and that therefore are in no position to cast stones. With humans as with leopards. it is hard to change the spots.

The little prejudices have, in all probability, the same origin as the big ones but they are not so worthy of respect, having in them often enough something of the comical or of the eccentric. The Important Folk have them as well as folk of lesser stature. Was it not Doctor Samuel Johnson who would walk along taking the greatest pains to tap every fourth railing with his stick lest, if he touched the third or fifth from the last one tapped instead, some catastrophe would come to him? Or if I am attributing to Johnson what belongs to another-well, the point will hold. And is there not the record of the Test Match cricketer who always must leave the pavilion the last of his team, believing that if he did not "ducks" would be his portion in batting and an appalling analysis be the result of his bowling? And as for the folk of lesser stature. their little prejudices are many and varied: the refusal to walk under ladders; the reluctance to accept a gift without exchanging a penny for it; the calling always of "heads" and never of "tails"; the dislike of passing another human on the stairs; the demand that one's bed should be along the line magnetic north to magnetic south. the stepping out of a vehicle always left foot first, or, maybe, always right foot firstand the list could be extended almost indefinitely. But the little prejudices are as difficult to eradicate as the big ones.

And the widespread existence of prejudices brings in the need for widespread tact. We are all members one of another. I, one "sack of prejudices," must needs work with Smith, another "sack of prejudices," and maybe must also live with him in mess and club, and however hard it may be for me to realize it, Smith's prejudices are likely to be just as rational or as irrational as mine. In any case, neither Smith nor I will change our spots; and if I, regarding my own spots with undoubted affection and considerable pride of possession, expect to be allowed to retain them and to have them, if not fully accepted, at least tolerated, I also must allow Smith similar concession. Which conceding I find exceeding hard, feeling the continual urge to point out to Smith the error and foolishness of his ways and how he would do so much better if he emulated me. And it is only in my rare best moments that I, liking Smith more than a little, see clearly that it is good that he completely rejects that emulation. the gentle humouring of another's prejudices. It is the supreme lubricant. Smith and I must make a pact that Smith shall be Smith and I shall be I—and, if the flesh is not too weak, keep the pact. The office, the mess and the club will be the happier for that: happier, maybe, than they have been of late; and so will Smith and so will I. And perhaps other Smiths in these places will follow suit—though I am not fully confident of that.

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## FIRST ATLANTIC AIR TRAIN

THE first air train to cross the Atlantic was brought over by R.A.F. Transport Command during the first week in July. The 3,500 miles of its journey were covered in twentyeight flying hours, and the train consisted of a glider, fully loaded, towed by a twinengined Dakota. The glider carried vaccines for Russia, radio, aircraft and motor parts.

This was the first time such a trip had been made across the Atlantic, or any ocean, and was the result of many months of experiment, during which several other records

were established, including one flight of 1177 statute miles.

When the glider broke cloud over its destination the towing aircraft was not visible. The glider had the sky to itself, and an interested group of spectators watched it turning

evenly and precisely to make a perfect landing in the centre of the runway.

A tractor nursed the glider off the runway. The tug broke cloud, circled and dropped the towrope neatly at the appointed place, where an airman collected it-£80 worth of nylon, which might have made ladies' stockings a few years previously. The tug landed and taxied to its station, and the tractor delivered the glider alongside.

Within a few minutes its load was trollied away and the glider safely housed.

Outwardly it was normal routine: just another job by Transport Command. Behind it, however, is the story of much experiment. The flight had its origin in a conception of the Air Officer Commanding-in-Chief, Sir Frederick Bowhill who, while commanding the North and South Atlantic Bomber Ferry from Canada, instituted cautious experiments with a view to collecting exact information as to the ultimate possibility of an Atlantic air-train service. Sir Frederick had no extravagant ideas about the project, and lays no special emphasis on what the flight accomplished. The test was made as a foundation for further work to be carried out by the technical research branch of his command.

Squadron Leader R. G. Seys, D.F.C., of the R.A.F. was selected as captain of the glider, with Squadron Leader F. M. Gobeil, R.C.A.F., as co-pilot. Both officers

belong to the Atlantic group of Transport Command.

In the towplane were Flight Lieutenant W. S. Longhurst (Captain), a Canadian with the R.A.F., and Flight Lieutenant C. W. H. Thomson, a New Zealander also with the R.A.F., both also of Transport Command. The radio officer was Mr. H. G. Wightman, and the flight engineer Pilot Officer R. H. Wormington.

At the base in Canada the projected flight was encouraged and furthered by Air

Commodore Powell and Group Captain Mutch.

The glider has an 84-ft. wing-span type C G 4A, designed by the Waco aircraft firm, and built by a piano manufacturer in New York. The freight load is one and a half tons. For the flight it was equipped with rubber dinghies, ordinary ocean emergency equipment carried by bombers crossing the Atlantic, and flotation gear. The steel attachments were designed to take a pull of 20,000 lb. Loading and unloading is through a hinged nose, which opens and closes with a jaw-like action.

The successful conclusion of the flight set up a world record in total distance for a glider carrying freight. The non-stop record flight had already been made by Squadron Leader Seys, who began the actual experiments for the crossing about six months ago. All trials were made with the glider fully loaded, to test the possibilities of a passenger,

freight, military or compercial air-train service across the Atlantic.

Some of the worst weather known in North America for fifty years was met during these experiments. Once, the glider force-landed in deep snow, during a blizzard, in

mountainous country sixty miles from Montreal.

The first major achievement was a triangular-course flight from and back to Montreal by way of Newfoundland and Labrador. The last stage of this flight, 820 miles, set up a record for a glider fully loaded with freight, beating the American record of 670 miles.

Longer flights followed. On one, southwards from Canada, 1,177 statute miles were covered non-stop at an average speed of 150 m.p.h. This flight provided the

data required for the Atlantic venture.

On the journey from Montreal to Britain, according to Squadron Leader Seys and his co-pilot, conditions were mainly favourable, except on the first leg of the run when, in climbing against a head-wind progress was extremely slow. After about three hours the train had reached about 9,000 ft., in an attempt to get over the clouds, but the higher the aircraft climbed the higher the clouds seemed to be. At 13,000 ft. the clouds still towered above and it was decided to go down and go through.

"Broken cumulus," said Squadron Leader Gobeil, "told us that we were going to get it, and we did. During the next three hours we were forced down by bad weather through three belts of thunderstorms, ice and snow, until we were only 1,500

ft. above the ground."

The glider must be flown all the time. There is no automatic pilot. The pilot may not take his eyes off the towplane, or the towrope if the tug is in cloud, for a second.

"If everything is not closely watched all the time," said Squadron Leader Seys,

"loss of control is the immediate danger. It only takes a few seconds."

Particularly in cloud, or at night, care must be constant. In cloud, with the tug invisible, the pilot watches the portion of the towrope that is visible, judging his position in relation to the tug by the angle of the rope—called the angle of dangle.

glider should be flown at about 20 ft. above the towplane.

Apart from the constant strain, the take-off is the most difficult part of the flight. The wing-loading of the glider is less than that of the tug, and it flies in the take-off at a lower speed, so that it is airborne while the towplane is still on the ground. Should the pilot allow the glider to get too high before the tug has taken off, its tail could be pulled up so that no take-off at all would be possible.

"And," explained Squadron Leader Seys, "throughout the flight it is essential not to let the glider get too low, otherwise the tail of the tug would be pulled down,

and the aircraft would stall in too steep a climb."

The physical strain of flying is considerable. Concentration becomes almost hypnotic. "Looking hard at one thing all the time," said Squadron Leader Gobeil, "fastens it on you so that you just can't get rid of it."

Even when they are nominally resting, each pilot is still tensed, still concentrating. In clear weather without an horizon, spells run to about one hour, in clear weather with an horizon, two hours; but in bad weather the captain may continue at the control for hours.

Noise complicates life for the glider pilots. Without power unit though it is, the air pulses "Like a goods train on worn tracks, a steady beating of wheels over joints," in Squadron Leader Gobeil's words. Nor does the noise diminish until the

glider speed falls below 70 knots.

For communication between glider and tug, wireless is used, through ordinary earphones and throat microphones. When not in use the glider switches off, to save batteries. If the pilot of the tug wishes to speak to the glider he waggles his wings as a signal.

Change of temperature has to be allowed for. There is no heating system in the glider. Out of the sun, in cloud, or snow, the outside temperature can drop to 30

"We had snow inside the glider at one time," said Squadron Leader Gobeil. "Yet, in clear sunshme, regardless of outside temperature the glider is as hot as a glasshouse:

the celluloid cockpit concentrates the sun's rays.

For the Atlantic crossing, modifications to the tug were devised by Wing Commander Furner, who flew in the tug. They were executed by the flight engineer, Pilot Officer Wormington. These included special tanks for extra fuel, tanks so made that they could be retrisoned intact, with their contents, should the need arise. Petrol could not be retrisord loose, as it would spray back on to the glider and atmospheric electricity might ignite the petrol and fire the glider.

Die'l in the glider itself, in case of being forced down into the sea, was a routine matter between pilot and co-pilot. The first essential was to cut the fuselage opena knote hing from the top for that purpose. Through the hole the freight and pilot

went, so that the flotation apparatus in ght function.

"But we drive have to put in any practice," said Squadron Leader Seys. "We had masonable good weather most of the fiving time. There were no incidents. I ambings more good and mithout mishap, save that once the towrope had to be spliced before we could take off again, and on another occasion the coupling was damaged by being dropped on rock. It had to be straightened and re-welded. And while we are talking about the re-welding, I would like to say that we had marvellous help from the Americans wherever we went. They did everything they could for us. They didn't wait to be asked, they just thought up things to do for us. It was a fine example of co-operation."

The trip was made in stages. Weather was favourable on the whole, although to take immediate advantage of it sleep was sometimes curtailed. On the final stages, for example, the crews were able to get about two hours sleep. The last take-off was early in the morning and the train circled the airfield precisely on the estimated time of arrival, a long voyage successfully completed, the hazards taken, new facts learned and another

job done.

# GREATEST AIR/SEA RESCUE OPERATIONS OF THE WAR

In the greatest air/sea rescue operations of the war 101 British and American airmen were rescued from the North Sea within fifty hours and landed at different points in England. All of them had been forced down into the water through damage to their aircraft in the heavy day and night bombing raids on Germany during the latter part of July.

On 25th July, following Bomber Command's massive assault on Hamburg, U.S. Fortresses raided Northern Germany and nineteen of them were reported missing. The first S.O.S. from one of these Fortresses was received by a Coastal Command group

flying-control officer in the late afternoon.

As the attacks on industrial Germany continued on a vast scale—Bomber Command raided Essen, on the night of 25th/26th July, and American Fortresses raided Hamburg in daylight on 26th July—more reports of "ditched" aircraft come in and rescue operations soon became intensified.

High-speed launches, Walrus amphibians, lifeboats, trawlers and fishing smacks co-operated in the search for survivors, while airborne lifeboats carried by air/sea rescue aircraft were twice dropped in one day and once subsequently to air crews nearly 200

miles apart.

During the fifty hours which ended at 7.30 p.m. on 27th July more than 200 aircraft from Bomber, Fighter and Coastal Commands, as well as aircraft of the U.S.A.A.F., participated in the operation searching by day and night and guarding the dinghies,

lifeboats, launches and Walruses from possible enemy interference.

Most of the rescues were made more than 100 miles from England, about half-way across the North Sea. A few airmen were seen by the Royal Observer Corps and rescued within sight of the English coast. But one crew of nine Americans were saved when an airborne lifeboat was dropped by parachute approximately 200 miles from England and only sixty miles from the Dutch and Danish occupied coastlines.

On Sunday evening, when this formidable air/sea rescue operation began, reports of "ditched" aircraft were continuously being received by a Coastal Command group flying-control organization, which occupies a long narrow room with walls covered by

charts of the North Sea.

"I've never known anything like it," said the group senior flying-control officer. "On the second afternoon alone we had as many as fifty reports about dinghies which had been sighted. Positions poured in—from the "ditching" aircraft, from aircraft flying over the North Sea, from radio stations and launches, from R.A.F. stations and commands."

Members of the W.A.A.F. recorded the messages and, after careful analysis, "fixes" were obtained and the W.A.A.F. on duty at flying control helped to plot the exact positions. Then the comprehensive rescue machinery was put into operation.

Bombers were directed to search one area to look for a certain crew; American

Air Force H.Q. were asked to search another area, and Fighter Command provided air cover. Sometimes a high-speed launch was considered adequate to pick up a particular crew; sometimes a Walrus aircraft was sent out; and on three occasions Coastal Command aircraft carrying an airborne lifeboat were assigned the rescue task.

At one period more than 70 aircraft were in the air at once—Fortresses, Halifaxes, Stirlings and Beaufighters. Distance, weather, possible enemy action, relief for aircraft reaching the limit of their endurance, and many other factors required constant attention.

An airborne lifeboat was first dropped shortly after noon on 26th July, when the commander of an Air/Sea Rescue Squadron, Wing Commander B. G. Corry, D.F.C., saw a Fortress which had just alighted on the sea about two miles from his aircraft.

"The crew had clambered on to the wings and were getting into two dinghies," said the Wing Commander. "Three men were in one dinghy and another was in the water. When the dinghies started drifting apart I decided to drop the lifeboat. Down it went, landing like a leaf on the water, between one of the dinghies and the sinking aircraft. It was quickly boarded by the air crew and, as I left, it was chugging back to land, with another aircraft providing cover. The survivors could not have been in the water for more than a few minutes."

Later in the afternoon of the same day it was reported that a Fortress had "ditched" sixty miles north of Borkum. An airborne lifeboat aircraft was immediately despatched, as the area was known to be sown with mines and it would have been dangerous for surface craft to attempt the rescue.

"We dropped the lifeboat without difficulty," said the pilot of the aircraft, "and the American boys scrambled aboard it. There were nine of them and we gave them air protection until darkness."

At dawn the next morning flying control sent more aircraft to locate the airborne lifebout and escort it home. The boat was sighted and launches went to meet it, while relief aircraft dropped additional supplies of petrol and oil.

About noon on 27th July it was reported that a foreign trawler had stopped the lifeboat, had taken the airmen on board, and was heading towards enemy territory.

A British Halifax aircraft, however, swept over the trawler and persuaded it to turn about and proceed towards England. On its way across the sea it was escorted by aircraft of the R.A.F.

I'wo Walruses of one Air Sea Rescue Squadron rescued the entire crew of ten of another Fortress bomber in the North Sea.

An Anson, with Spithre escort, sighted a Ventura bomber circling over ten men in a dingly and pin pointed the position for two Walruses of the same squadron, which immediately flew to the spot. They came down on the water safely and took aboard the ten American airmen, but the heavy swell made a take-off impossible and they had no alternative but to begin to taxi back to an East Coast port.

For an hour they struggled through the heavy seas until a launch met them and took aboutd the rescued men. One Walrus was then able to take off and it flew back to base. The other Walrus had been damaged by its buffeting, however, and had to continue taking along through the sea. After more than eight hours of taxising it reached port safely.

The rescue of these ten American airmen brought this particular squadron's total of lives saved to ou

Another Art Sia Resche Squadron picked up two Canadian squadron leaders who had baled out of burning Spithres a few miles on the enemy coast.

Spriftes which took a Walriss almost to the mouth of the Somme estuary recently to rescue one squarron leader tought of an attempt by enemy fighters to hamper the Walriss and shot down an Me. too. Then the Walriss with a Camadian and a German yilot, flew back to base.

The Canadian could have baled out over Abberille but preferred to take a chance of being rescond instead of being made a prescner. He dew his faming Spittle towards the Channel and a bitle later some of his colleagues returning from the sweep saw him satch is his or given his rescue tollowed some afterwards.

The second Canadian squadron leader was rescued the next afternoon. the first squadron leader, he' had experienced engine trouble which set his aircraft on fire as he was leading his squadron home from a sweep over Belgium. Members of his squadron flew over him protectively while the Walrus picked him up. His dinghy had been damaged but his "Mae West" life jacket kept him afloat.

Naval rescue motor-launches and high-speed launches from air/sea rescue bases have picked up 59 of the 101 rescued airmen—49 of the 59 having been Americans. Of the remainder 20 were rescued by R.N.L.I. lifeboats from Sheringham and Cromer,

13 by Walrus\_air/sea rescue aircraft and 9 by a trawler.

The Royal Observer Corps also sighted two air crews a few miles off the coast and signalled out the Cromer lifeboat, which rescued a crew of ten Americans and one of five Englishmen. Other members of the R.O.C., who saw another American Fortress "ditch" not far from the shore, signalled a fishing vessel which went to the help of the airmen and brought back ten men.

A trawler at sea picked up another American Fortress crew. Sir Archibald Sinclair, Secretary of State for Air, sent the following message on behalf of the War Cabinet, to the Air Officers Commanding-in-Chief, Coastal Command

and Fighter Command, Royal Air Force: -

"The War Cabinet have charged me to express to you their admiration of the magnificent work performed by the air/sea rescue organization, under your command, during the recent heavy air battles. Many gallant American and British air crews owe their lives to their constant diligence and unflinching devotion to duty. They are making an indispensable contribution to the growing Allied air offensive.

# "FAITH" SEES MALTA'S TRANSFORMATION

In a quarry near one of Malta's airfields sits "Faith," sole survivor of the three original Gladiator fighters with which the R.A.F. in Malta faced the first onslaught of the Italian Air Force. "Faith" is wingless and motorless on a pair of fashionably

tyreless wheels, and she takes in imperturbably a much changed Malta scene.

From her grassy seat in the bottom of this old quarry "Faith" has seen a good deal. She watched the coming of the Spitfires, employed with Battle of Britain tactics, that smashed two Hun blitzes. She watched the island come nearer and nearer to food and petrol starvation: and she watched the R.A.F. grow from such small beginnings to overwhelming strength, and launch a stone from the Malta sling to knock out the

Sicilian Goliath.

How did this come about? How was Air Vice-Marshal Sir Keith Park, victor of the Battle of Britain and the Battle of Malta, able, overnight, to seize air supremacy over Sicily and hold it without serious challenge throughout the Allied invasion? It is fantastic to think that it is only seven months ago that Malta was near the end of a long, weakening siege, with dwindling supplies, famine in all aircraft spares, even of carbons for signal pads, waiting for accumulators and torpedoes for the aircraft that still struck viciously at the Rommel convoys. The story of the change is one of magnificent achievement, of determined planning of airfields built with a woeful shortage of tools and labour.

Even in September, with the siege at its height, the R.A.F. were completing a new airfield. Even then the preparations for Sicily were going ahead, though everything was in short supply. There was just enough tar to give a permanent surface to the centre of the runway: pens for aircraft were built of any materials that could be found, and stone, petrol cans, odd lengths of tubular steel scaffolding and corrugated iron. But the job was done, and when Lord Gort formally handed over the airfield to Sir Keith Park, the A.O.C. promised that it would be used for offensive action against the enemy.

Meanwhile other airfields were being improved, and all this time the R.A.F. in Malta were hitting out, bombing Bizerta and Tunis to help General Eisenhower's forces (the bomber crews made three sorties a night for three weeks, a record for any air force). Bombing Tripoli to open a way for the Eighth Army: intruding over the enemy's North African roads. Bombing and gunning his transports and troops at night; and every day the Spithre bombers, with bomb-racks made and fitted in Malta, punched Sicilian airfields and factories, and in the moonlight Mosquitoes made scrap-iron out of Mussolini's railways.

Work went on steadily into the spring. Then the R.A.F. in Malta, had a gleeful chuckle. There was, between two airfields in the 1942 blitz, a strip of land that was the cemetery of wrecks of burned and battered aircraft, both British and German. Just a dump. Yet in all the blitzes it had attracted more bombs than anywhere else. It was the most bombed strip of land in the world, and the R.A.F. made a Spitfire airfield

out of it in two and a half months.

Malta began to fill, imperceptibly but unceasingly. Offices were at a premium; messes served meals in relays; staffs were expanded, and the Spitfires and Beaufighters escorted the convoys and the pace of preparation quickened. Always the work of extension went on. Operations rooms were put underground (the Malta stone is so soft that the Count of Monte Cristo could have dug his way out of a Malta dungeon with a penknife). Petrol went below for safety; a great underground workshop was made; more and more aircraft pens were built. In ten and a half months the equivalent of more than 120 miles of 15-ft, wide road was laid in Malta in runways and roadways.

Not bad for an island from which the siege was lifted only seven months ago. When everything was ready the "guests" arrived. Crack squadrons of the Desert Air Forge and from North-West Africa reinforced the Malta "regulars." Aircraft pens were crowded with two or three Spitfires in each. The new arrivals underwent a period of intensive flying training and ground crews kept the fighters tuned up for the big job. On oth July the Spitfires escorted the invasion fleet; on 10th July they swept into the dawn, and by sun-up they held, once and for all the air over Sicily. And "Faith," that bombed, burned and twisted old Gladiator, settled down a little more comfortably in her grassy quarry.

# ALLIED AIR FORCES PART IN MUSSOLINI'S DOWNFALL

To a large extent Mussolini's position had been made untenable by the power of the Allied Air Forces. Metropolitan Italy had not been invaded by land but its ruler saw the writing on the wall. The Italians had lost their African possessions; Pantellaria and Lampediusa had surrendered under air bombardment; Sicily had been so weakened that the Allied armies swept swiftly and with few losses across the island until only a napidly parrowing bridgehead remained to the Italians and their German masters. Day after day vital industrial targets were bombed on the length of the vulnerable "leg" of Italy—oil refinences, aircraft factories, arsenals and marshalling yards. The Southern Italian airfields had been so blanketed with bombs, and so many aircraft destroyed in their dispersal areas that the Regia Aeronautica and the Luitwañe were no longer able to give protection to the large Italian cities, even those in the densely populated industrial north

That was the story Mussolini had to tell Hitler when they met; he did not need to tell him that the Italians by themselves could not hope to defend Italy. But it appeared that Hitler had butle contour to offer. The I univarie was deeply committed in Russia and Western Furone. It could no longer afford to throw away aircraft as in Tunisia. Mussolim told his Fasoist Grand Council of his unhelpful talk with Hutler and he was toward to get out. To a large extent his position had been made unterable by the power of the Whol air towes.

For two months since the end of the Tunisian campaign, Italy and its first line of defence—the Central Mediterranean islands—had reeled under the weight of 3,000 tons of bombs each week. Nearly 4,500 tons of bombs were dropped on Pantellaria in 85 raids before it surrendered. The war crept still closer to Italy's gimcrack dictator as the heat was turned on Sicily in earnest, preparatory to invasion. The island's airfields, heavily stocked with German and Italian fighters, were attacked all round the clock and scores of aircraft were destroyed on the ground.

With what had Italy to counter these devastating air attacks? With the exception of three fairly modern fighter types and one bomber type all the aircraft of the Regia Aeronautica are obsolescent by modern standards. Italian industry was not ready for a long war and bombing had made it difficult for the factories to produce new fighter

types.

The next stage in the air war in Sicily was quickly drawn to a close—the crippling of the enemy's communications and the destruction of his supplies wherever they may be found, on docks, on airfields, in warehouses, or hidden away in roadside olive groves. But the smashing of communications had been the paramount task, the object being to isolate the ground forces still clinging to North-East Sicily so that they found them-

selves short of ammunition, short of petrol, of water, and rations and weapons.

At this stage there is general confusion. Orders do not get through, and when they do shortage of vehicles or material prevents them being executed. Von Arnim admitted that that was the situation in Tunisia when he was captured: he had been cut off from his troops for hours. That is the last phase before organized resistance ceases. It is the phase towards which our Tactical fighters and bombers have been working in Sicily when they shoot up convoys, attack trains, bomb level-crossings and road junctions, blow up bridges. It is not weight of bombs dropped which counts in these operations. One small bomb may destroy a bridge and hold up traffic for hours, jamming miles of roads; one burst of cannon may wreck a whole train. Such attacks do not make big news but the cumulative effects result in the enemy's surrender, as it did in Tunisia.

The same task over a wider area was all the while being pursued by big bombers and long-range patrolling aircraft of the Strategic and Coastal air forces.

## MORE NOTES OF A NIGHT FIGHTER

By Flying Officer W. Thomas Cunningham.

THE strong pear-drop smell of aircraft dope pervaded the crew room. The latest crew to join the squadron had now become operational and were stencilling on their sweaters in large red letters "Round the Bend." They had made the grade and now "belonged." I guessed that their haste to do this coincided with the news that we were flying off this morning to exchange our aircraft for new ones of the latest type. The air was buzzing with chatter and a group of fellows stood outside: Dave, saw in hand, and Harry with his chicken feed. A spade was standing in the soil where someone had been digging; the dinghy lay idle at its moorings though a fine wind, rippling the surface of the lake, promised good sport; and the swans, sensing our new interests, turned away and floated disdainfully to their home in the reeds.

It was a brave sight that formation as we closed in and dipped over dispersal-

"The Lido"—and a testimony to our training by an ex day-fighter C.O.

The sun is bright, the sky mottled with the light fingerprints of cirro-cumulus, and the visibility as good as I have ever seen it—the horizon rimmed by the sea on the one side and by the soft blue vertebrae of the Pennines on the other. Below is a patchwork in subtle colours of a thousand fields, ribbons of rivers and white roads, and communities growing out of the very landscape itself. Indeed "England is my village." Then

the earth scarred with the advance of industry, stained by smoke and seared by fire. townships dwarfed by slag-heaps and habitations, tall chimneys their sentinels, regimented like soldiers on parade, a riot of railways and roads conflicting for ingress to

supply the needs of a populace toiling to forge the urgent weapons of war.

Now we are landing in double quick-time, except for one of us who has to go round We are pulling his leg about it and again because his wheels fail to come down. calling it finger trouble. Then the new aircraft with their slender lines and graceful beauty. One after another we take off, skim the houses at the end of the airfield, climb easily into the sky and speed off individually to try them out and see if they are what the manufacturers claim for them.

That was the day of the strawberry tea. All the squadron went to "The Cedar Tree," where Mrs. Jay Willie was hostess. The boys who had stayed behind had spent the day hunting for strawberries and trimming the lawn, and the more domesticated ones helping to cut sandwiches. It was certainly a royal feast we had that summer's afternoon. Whether it was the strawberries or the beer relays with the natives in the local pub afterwards, or a combination of both, which accounted for our indisposition was not decided, but the squadron as a whole had very little interest the next morning even in their new kites.

Vic and his wife had been holding a party in "The Red Lion." Lon and I walked back to camp. It was a big moon and as light as day with the strong scent of Autumn in the hedgerows and clusters of berries shining like patent leather. One or two kites were milling round the circuit. They came into sight each time they passed overhead, their exhausts winking and engines filling the sky with clamour.
"I'm glad I'm not 'on' to-night," said Lon; "there is something in the air that

makes one content to be on the ground, a sort of sweet melancholy. Or is it mine hosts good liquor?"

Lon, the baby of the squadron, gay, full of fun, pleasure-loving, flirt, pseudo-Philistine and cynic, I had caught in one of his rare philosophical moods and looked forward with pleasure to a discussion on mankind, religion, war, women, travel, or

what have you, but even more so to hearing what he really thought.

He told me how he had landed at dawn the last few mornings. To watch the sunrise from ten thousand feet was his delight, and then to drop down to the darkness still clinging to the earth and see it all over again. To break through cloud and meet the early sun was like suddenly finding oneself in a cathedral streaming with light. There was the same quiet and solemnity which the noise of your motors could not destroy, and something of the stained-glass window in the changing colours of the cloud. Peter Scott, who came from his native Fenland, he admired because his birds were suspended in the air and not as if stuck on as an afterthought. Music, above all, he liked, but chiefly sad music. He would be content to die listening to "The Swan of Tuonela" or to the "Pathetique." Travel books, the noise of fair-grounds, sunbathing, busy railway stations, chocolate doughnuts, feed lager, St. Paul's, J. B. Proestley, red headed girls, photograph albums and the smell of roast chestnuts were all his loves.

We paused where the road passes near to the totem poles while a kite touched

"I wonder for how many of us it is true what Yeats says about the Irish airmanthat it was not public men or cheering crowds but

> A lonely impulse of delight Drove to this turnult in the skies."

"What," he went on, "shall we do after the war when there's no flying to be done?"

It was not long afterwards that Fate answered his question for him. Lon's operathough current was a short one, though long enough to show that he had the magic touch for combit in the air. He destroyed more trains at right than any other pilot in the sector. Having run out of aminumbon on one occasion be dived on a Heinkel whose

pilot lost his head, for within a few moments the Jerry was going down in a spin from which he never recovered. He was shot down, and Mike with him, into the sea when, following a Hun back to France, he ran into a flight of F.Ws. on dawn patrol.

We arrived at the Mess in time to join the others in a sing-song.

Providing Jerry stays at home a patrol is a dull enough affair—especially when the night is cold and unfriendly, the horizon an indistinct smudge and the stars but fleeting blobs of light between clouds. You are hurtling with all lights out through the underground. You take comfort in the array of phosphorent dials in the cockpit, in the steady pulsating of your motors and in, perhaps, a thought or two of a bright fire waiting for you when you get down, a cup of steaming cocoa and a cigarette—unless there is business about, and that is different.

There are nights though when every moment of the trip is a sheer joy, when there is magic in the air; nights clear and frosty when the stars are near and in clusters like primroses; blue-green summer nights with far-away pin-points for stars; nights of the moon when the surface of the earth shows up in sharp relief, cold, stark, mysterious and still, and the sea has a sheen whose loveliness no brush can paint.

You could come across Huns, a dark shape darting across your bows, a suggestion of a swastika caught in the tail of a glance, a silhouette against stars, and you could hit them but often never know if the blow had been fatal. To-night was full moon. We were going to fasten on till he fell out of the sky with both engines on fire.

The engines splutter into life, and while they are warming up China and I make a quick check over the cockpit. Engines, electrics, hydraulics, oxygen, right through to maps and navigational equipment. Now we are revving up with a roar that numbs Chocks away, hatches closed and we are taxi-ing round the perimeter track to the marshalling point. Now we are lined up with the runway. The lane of lights narrows in the distance, obeying the law of perspective like any art master's railway lines. The engines are cleared, the throttles pushed slowly open and we move forward, slowly at first, then, tail raised, faster and faster till the flare-path lights race past in a broken line. Flying speed attained, China brings her off the deck. We are free of the earth and climbing rapidly towards cloud faintly luminous in the moon. The airfield lights recede and we are shut off from the earth.

"Bostick Leader airborne."

The message comes back in the deliberate tones of the controller: "Climb to

operational height and patrol Sector Dee, Dee for Doctor."

We break through a layer of stratus and see it below, close-knitted like a sea of white wool; an excellent background for a target. Above and around we share the emptiness with the stars. I turn from it to draw in our course on the Mercator.

Other planes from our squadron are now becoming airborne; we hear them over the R/T. And then: "Hello, Bostick Leader, we have business for you. Steer one fife

zero, one fife zero."

We are the first of the squadron on the job.

"Sure the cannons are loaded?" whispers China over the intercom. forward to check them. "Any idea where this course is taking us?" I lean

"Norbury, it looks like," I say, mentioning the name of an historic city due for its Baedeker raid. The cloud is breaking and a good pin-point soon confirms this.

"The fun has already started. Bags of flak and pretty lights. I'll turn off course for a moment. Look starboard.'

At that moment there is a burst of flame and an aircraft falls to earth.

"One less for us."

Then we are among it. A Beaufighter cuts across our nose, its guns aflame, and another Hun goes down in a shallow dive. There is a great sheet of flame as it hits the deck. Bombs are going down. There is a red glow near the cathedral and a line of fires along the railway.

"Hold on," calls China, "the searchlights have got one and I'm going to try and head him off." A steep diving turn, a full deflection burst at 200 yards and we are in another hard turn trying to come up on the other side of him. But the searchlights have lost him and so have we. A host of flares goes down in another quarter. In the light of his own flares we see him, a Dornier, levelling out to bomb. He swerves as we open attack and his stick of incendiaries falls across a wood. China gives his starboard engine a long burst while his tracer is stabbing past our cockpit. We dive to port and draw beneath him.

"I can see strikes on his port engine but the bastard just won't take fire," calls

China.

Just then the Dornier peels off, so hard that I know something is wrong and that he will never pull out. Suddenly both engines are aflame and he is dropping powerless to earth. There is something terrifying and fascinating in watching a plane falling helpless out of the sky. It is like an autumn leaf wheeling and fluttering, bent inexorably earthwards.

We are shuddering to a stall before we take our eyes away. There is a coating

of rime on our wings and yet I can feel perspiration trickling down my back.

The raid is over and we are recalled to base. The squadron has destroyed five enemy aircraft for the loss of one of ours—the crew of which is safe.

. . .

Christmas time and a kindly mist fell over Watering. Jay Willie was to be posted on rest and China to take over the squadron. These events, coinciding with non-flying conditions, conspired towards the biggest and best party that had ever been witnessed on the station. It started in the morning with the easy spontaneity of a successful party when a few "Round the Bend" boys were gathered round the fireplace, and it grew in volume as the lunch-time approached, until before long it had doubled and redoubled itself many times, like the gathering of the children who followed the Pied Piper. Our meal was a feast of speeches and entertainment, among which Dave's sword dance and Mac's Scotch Reel were outstanding events. There was dancing on the ice at "The Lido" in the evening. The band played in the crew room and the music was relayed by loudspeaker. A tea urn and sandwiches were produced and all that was missing was fairy lights in the fir trees. (Shortly after this evening two engagements in the squadron were announced.) As we were closing down the celebrations I imbo came rushing up to join us. He had gone to sleep after the afternoon session and had just come to life. Someone had stolen his girl.

A comic kee-hockey match followed the next morning, in which there were but two pairs of skates, one for either side. Nobbit, now become Flight Commander, in an effort of keenness, got some aircraft off during a temporary clearance of the mist but was mabbe to get them down again. Telephone calls were coming in from different stations saying that aircraft from our squadron had landed there. When they were all

down we induged in a deal of leg-pulling.

At last the weather cleared. We were due off at midnight and looked in on a show given by a local convert party. The most interesting figure was the comedian, a wise red old man who had once been well known in the misse halls. A frail, comic, patheter figure, he was too old for the footlights and too worn. What a pleasure it was and a relief to find that he could still make people laugh, that he could still evoke sinciple appliance. I looked round at the sea of faces in by the reflected light and saw to and once as one body learning forward, hanging on every word. Here was quality of performance such as is the possession of the greater himnorists. Without that quality his roces were old ones—how differently would be have been received! Should we have that at old man is still drawn irresistably to the stage where for him failure not from the corner, or should we recove that once more he has cheated Fate? One had now poodering the same question, he told me, as we drove over to Dispersal.

" Grew rift while with me.

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We did use a tracer of that right. It proved to be uneventful her Lon came back for it project over the text of he serves it successes.

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The bottom had fallen out of our world.

It was a chill morning and the country bound in a hard frost. On the sides of the deep-rutted lanes the hedges bristled with bare thorns, the grass stood congealed in untidy tufts and piles of leaves lay unresponsive to the wind. It was a fitting scene for our news. China and I were being posted and the squadron amalgamated with another. We had left the lake behind and were driving round the perimeter track. Now the wide sweep of the airfield swung into sight with the watch office gaunt against the skyline and the great runways, where but a few nights before we had been clearing snow and joking about the rum ration.

But that was long ago—or was it so long? At any rate, behind us lies a tour of instructional duties in a "foreign" land where, in the hurry of training, friendships are fleeting and acquaintanceships many but shortlived, the "Round the Bend" boys have become much dispersed, two of them shot into the sea, some gone overseas, some in other Commands, only a few left to sit round the stove of some dispersal hut and talk about Watering, Swafton Mafeking and "The Lido" and perhaps shoot a line

or two.

## MEDICAL ASPECTS OF AVIATION\*

By CAPIAIN ERNST JOKL, M.D.

[The following are Sections 51-61 inclusive of this remarkably interesting and fascinating book on the subject recently published. We regret not being able to reproduce the numerous illustrations which accompany the text.]

#### FEELING SHAKY.

RESULTS of researches in industrial medicine suggest that vibrations are of very great importance in causing fatigue, nervous irritability, and sometimes even such serious symptoms as impairment of consciousness and abnormal mental reactions. Recent experiences during the bombing of large cities have not only corroborated such observations but, for the first time, provided a pathetic opportunity of studying more closely some

of the problems involved.

For several reasons the vibration problem occupies a special phase in aviation medicine. In contrast to land machines, the aeroplane swings and vibrates in free suspension. The far protruding wings provide ideal elements of resonance. In modern cabin planes the enclosed air spaces act as elastic masses which swing with the vibration of the engines. The extraordinarily high frequences of aeroplane engines give rise to a large number of vibrations, some of which are directly produced, while others are induced. During flying, one always encounters a mixture of vibrations, mechanical "impulses" and noise, and it is difficult at the present stage of our knowledge to state to what extent such adverse physiological effects as are observed are due to a single factor or to a combination of several factors.

Of great use in this field are certain results obtained in the course of scientific investigations in other fields. Earthquake research has shown that the human organism is less susceptible to low-frequency vibrations than are buildings; musical studies of the effects of vibrations of the kind produced by organ pipes have added to our knowledge; detailed tests have been undertaken by motor-car manufacturers with a view to standardizing steel spring arrangements in automobiles. Professor Laert has subjected "resting" persons to continuous vibrations by affixing electric motors to mattresses of bear.

General agreement exists as to the profoundly deleterious effect of at least certain categories of vibrations upon physical well-being. Professor Laert's experimental subjects complained of headache, irritability, feeling of dullness, sudden inefficiency during ordinary work, and interference with their usual skill. Unpleasant sensations caused by strong vibrations of frequencies above 8 Hertz were projected by most people in the head, while effects of low frequencies, below 3 Hertz, were felt in the stomach and abdomen. At the same time members of the latter experimental group felt dizzy.

<sup>\*</sup> Published by Pitmans. (See Book Notices.).

Systematic tests of vibratory influence on healthy human subjects have recently been conducted by Corman: A special electrodynamic device was constructed to make the investigation of frequencies between 20 and 1,000 Hertz possible. The oscillations came from a giant electro-dynamic loudspeaker in which currents of several thousand amperes

were produced. The movements were directly transferred to a vibration plate.

Blood pressure and pulse rate, nervous reflexes, as well as various sensory and mental performances of a number of persons, were carefully tested. Profound effects were observed, especially upon central nervous functions. The patellar reflex, for example, often disappeared altogether after exposure of the subject to vibrations. Some persons experimented on were rendered unable to focus objects near or far from the eye. Very large amplitudes induced a tendency to relax all muscles, irrespective of the subject's wilful intentions, and in a number of cases acute collapse ensued.

It is possible that many of the physiological effects of vibrations can be counteracted

by "training," while others increase in intensity at repeated exposures.

## " BLITZ " ASCENTS.

Until a few years ago, the high altitude problem in aviation could be considered to be altogether apart from the problem of high speed and acceleration. The recent development, however, of super-speed climbers ascending at initial rates of 4,000 ft. per minute to heights of between 30,000 and 40,000 ft.—hitherto undreamed-of figures—has created an entirely new situation.

During World War No. 1, medical problems of high altitude flying could be dealt with on the basis of the extensive physiological evidence collected during the previous fitty years by such research workers as Mosso in Italy, Barcroft in England and Zuntz

and I ocwy in Germany. Since then the situation has changed entirely.

It is the time factor which marks the difference between climbing a mountain by foot and ascending to a high altitude in the plane. At the beginning of this war, the routine ceiling of the combatant air forces was situated a little above the level of the tops of the little giants. Now, after little more than three years of war, this level has already risen to a height of 40,000 ft., i.e., far above any geological elevation on this earth. There can be no doubt that this ceiling will be further elevated.

#### Swing High, Swing Low.

It is a multitude of factors which changes profoundly and at a progressive rate as one ascends to the sub-stratosphere. Atmospheric pressure and with it the biologically so provious oxygen pressure as well as temperature decrease rapidly and to such an extent that they would soon interfere with a number of vital physiological services of the body unless relective prophylactic measures were taken.

In those we can deal with all altitude problems in aviation. We can construct closed call us or artiglit fixing suits and masks in which atmospheric conditions equivalent to those prevailing at sea level can be artificially maintained, notwithstanding even extinute charges of the surrounding atmosphere. The same principles are now being made in fixing as have been employed for years in the construction of under-water cosmol, each times, and divers equipment. However, these principles can for various become not be universally applied in acronauties, and, at the present moment, we so so solves to solvely applied in acronauties, and, at the present moment, we so so solves to solvely applied in acronauties, and, at the present moment, we so so solves to solvely applied in acronauties, and, at the present moment, we so so solves to solvely applied in acronauties, and, at the present moment, we so so solves to solvely applied in acronauties, and, at the present moment, we so so solves to solve any plots and cross even for mintary sub-stratosphere as to solve to the solve and only a legal that it is the intensely cold across to solve the solve of new legal in solve amounts or begin hear in the intensely cold above. The

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to an altitude of over 35,000 ft.—several types of 1941-42 English and U.S.A. fighter planes can do that—affects the body in many respects in the same way as a two-mile running race on the athletic track does. In both instances a profound strain is imposed upon the oxygen supply of the tissues of the body. In the first case, namely, that of an individual being subjected either to a sudden lowering of atmospheric pressure or, alternatively, to a rapid ascent to a high-altitude level, the supply of oxygen to the body is acutely reduced. Less and less oxygen flows through the alveolar septa of the lungs into the blood, and correspondingly less and less oxygen arrives with the blood stream at the tissues of the body. In the second instance, i.e., during short-lasting exhaustive exercise, an emergency situation is produced also through the oxygen supply of the tissues being suddenly impaired. In this case, however, the reason is not an interference with supply, but a sudden and considerable increase of the demands of the body tissues for oxygen. This demand may easily exceed the ability of blood circulation and of respiration to raise the rate of intake of oxygen. Thus, the same physiological end result as that brought about by the sudden exposure of the body to low atmospheric pressure may be produced.

In both instances the reactions of the body are in many respects similar. In carrying out the experiments mentioned the writer used changes in the number of blood corpuscles as indicators of the adaptive processes within the organism to the studied disturbances. It appeared that after exercise as well as after subjection to a sudden extensive decrease of atmospheric tension, the same changes appeared in the blood. Even the rate of return of the blood picture to normal was equal after the

cessation of the disturbing stimuli.

In addition to this, it was possible to throw light upon the physiological mechanism by means of which such changes are produced. This is of great theoretical interest as the reactions described above have an extremely profound significance within the complex of adjustive processes which the body uses in emergency situations of the kind studied.

## INTRODUCING PROFESSOR CANNON.

For a number of years Professor Cannon in Boston has presented important evidence to the effect that the body possesses a special "protection organization" to be brought into action in the course of emergencies. One of the main, although apparently not the only physiological executive centres used in such emergencies is the suprarenal gland, more particularly its innermost part, the "medulla." This gland forms a highly active substance, adrenalin, which is secreted into the blood stream during emergencies. It plays an important part in enabling the body to cope with certain biologically difficult situations.

The effects of adrenalin and related substances upon the organism can be studied by using synthetic adrenalin, which our chemists produce now even more easily than the suprarenal gland does, and injecting it into the body. In the writer's experiments a minute quantity of this substance produced almost exactly the same reactions in the blood as had been observed under the influence of sudden lowering of atmospheric pressure, or by muscular exercise. It may thus be assumed that during fast ascents in modern planes, the suprarenal glands of the fighter pilot secrete adrenalin into his

blood stream.

The significance of this reaction has been discussed by Professor Cannon in his brilliant book "The Wisdom of the Body." The complex of changes during the emergency reaction which is accompanied as well as controlled by the secretion of adrenalin "keeps the body on an even course in spite of conditions which might have been deeply disturbing."

It is most remarkable that the latest developments of technique have created a situation in which the physical reactions of the highly trained pilot are the same as those occurring in animals and under primitive conditions of human life as accom-

paniments of the powerful emotions of rage and fear.

"Respiration deepens, the heart beats more rapidly, the arterial pressure rises, the blood is shifted away from the stomach and intestines to the heart and central nervous system and the muscles, the processes in the alimentary canal cease, sugar is

freed from the reserves in the liver, the spleen contracts and discharges its content of concentrated corpuscles, and adrenalin is secreted from the adrenal medulla. The key to these marvellous transformations in the body is found in relating them to the natural accompaniments of fear and rage—running away in order to escape from danger, and attacking in order to be dominant. Whichever the action, a life-or-death

struggle may ensue.

The emotional responses just listed may reasonably be regarded as preparatory for struggle. They are adjustments which, so far as possible, put the organism in readiness for meeting the demands which will be made upon it. The secreted adrenalin co-operates with sympathetic nerve impulses in calling forth stored glycogen from the liver, thus flooding the blood with sugar for the use of labouring muscles; it helps in distributing the blood in abundance to the heart, the brain, and the limbs (i.e., to the parts essential for intense physical effort), while taking it away from the inhibited organs in the abdomen; it quickly abolishes the effects of muscular fatigue so that the organism which can muster adrenalin in the blood can restore to its tired muscles the same readiness to act which they had when fresh; and it renders the blood more rapidly coagulable. The increased respiration, the redistributed blood running at high pressure, and the more numerous red corpuscles set free from the spleen provide for essential oxygen and for riddance of acid waste, and make a setting for instantaneous and supreme action. In short, all these changes are directly serviceable in rendering the organism more effective in the violent display of energy which fear or rage may involve.

The remarkable arrangements which operate when we engage in hard muscular exercise, and which are prepared in an anticipatory manner in great emotional excitement, we can best understand by reference to racial history. For innumerable generations our ancestors had to meet the exigencies of existence by physical effort, perhaps in putting forth their utmost strength. The struggle for existence has been largely a nerve and muscle struggle. The organism in which the adjustments were most rapid and most perfect had advantages over their opponents in which the adjustments were less so. The functional perfections had survival value, and we may reasonably regard the elaborate arrangements for mobilizing the bodily forces, which are displayed when intense muscular effort is required or anticipated, as the natural consequences of a

natural selection."-(Cannon.)

The same mixture of excitement, fear, and fighting madness prepares the pilot's mind and body for battle. After his first victory in the air, "Cobber" Kain said that before the encounter "his heart had come right up into his mouth and he was sweating under his belinet." He added that he was scared stiff at the thought that his mechanic might have forgotten to put ammunition-belts in his eight machine-guns. At the same time he was supremely fit, shooting down his adversary, a Dornier, with the first burst of his eight machine guns.

It appears that in the course of evolution we have now reached a new stage. Technical performance patterns are being integrated with ancient mechanisms of life. The result is an entirely new level of human achievement and experience. The same anomals emotions which have reemed for millions of years in the lungle are now being displayed by pilots sitting in the cockpit of streamlined machines equipped with 2000 his motors, power-operated rotating gun turrets, and bemb-aiming devices displayed with the below of advanced mathematics. Indeed, this is an amazing come-book after a biological detour, lasting a few humined million years.

#### Execustion of the Adrenus.

The subsect of the motor's above previously researches at Davos has now assumed considerable practical agreedome. Processor I. F. Felton, of Nak University, has lated his preciously actival processor is the available scientific exhibitions. which points to a created near thread his the advecal glands of allowing the body to the hazards of high allower phase. It had been known for a conscientable time that the adrenal glands contact two different persons in the materials of the gland which we have above in and the correct the result in the materials of the contact which we have allowed and the correct the result in the materials of the contact which we have all end of the correct the result in the first the contact in the correct that the correct of the definition which have now made it always produce that the responsible of the adrenal modes of which have now made it always produce that the responsible of the adrenal

glands which so far had been considered to function rather independently are actually closely interrelated. While it is the medulla which reacts immediately to a reduction of atmospheric pressure, the interference of the adrenal cortex is required to adjust the functioning of the body to the changed conditions. The demands thus presented to the adrenals may be so great that the adaptability of this vital secretory organ becomes over-taxed. Conditions of extreme fatigue, or even of total exhaustion, which are not infrequently seen in airmen who have been exposed to high altitudes, are now considered to be, in part at least, the result of adrenal overstrain.

#### REFLEX CONTROL.

Another observation which the writer made at that time referred to the reaction of the central nervous system to conditions equivalent to those encountered during rapid ascents in the plane to high altitudes. The studies were originally undertaken on animals. Since they have now assumed considerable aviation medical importance,

they will be described in some detail.

It is well known that a large number of stimuli lead to "reflex responses" on the part of the organism. The central nervous system, i.e., brain and spinal cord, is capable of "short-circuiting," according to predetermined structural and functional plans, nervous currents elicited by various influences inside or outside the body. Such currents then travel towards spinal cord and brain through the network of nerves throughout the body. Only a small fraction of those currents is conceived and handled by our central nervous system in such a way as to make us consciously aware of them, so that we can respond and react to them deliberately. Most of them are dealt with "automatically," i.e., switched over to other nervous pathways. In other words, the organism possesses a perfect robot system in brain and spinal cord.

The one reflex best known to the layman is that which is elicited by tapping gently against the leg below the knee-cap; this leads to a contraction of the muscles situated on the anterior aspect of the thigh, which results in a sudden extension jerk in the

knee-joint. This phenomenon is called "patellar reflex."

In 1932 the writer observed that the intensity of the patellar as well as of the many other normal reflexes undergoes characteristic changes during rapid lowering of atmospheric pressure at a rate equivalent to the climbing speed of our fastest planes. Between 10,000 and 17,000 ft., the reflex response becomes smaller. If the ascent is continued, a steady increase in nervous reactivity occurs, as indicated by the reflexes becoming more lively. If altitudes of over 20,000 ft. are approached, a distinct central nervous hyper-irritability becomes apparent, and at still higher levels, i.e., at 30,000 ft. and above, the central nervous system "runs amuck." Seizures and cramps occur, and, if—exposure to such catastrophic environmental conditions continues, death ensues.

The main factor responsible for this interesting multiphasic reaction of the reflex intensity within the central nervous system is the profound interference with oxygen supply caused by the continuous lowering of atmospheric pressure at high altitudes. This can be shown by repeating the tests in the low-pressure chamber while oxygen is given under sufficient pressure. Under such conditions practically no changes in the

intensity of the reflex responses were noticed.

The writer immediately verified these findings in the course of a special high-altitude expedition to Muottas Muraigl in the Engadin. Human experimental subjects showed the same reactions as those seen first in the animal tests. Soon afterwards, these observations were utilized by various military authorities with a view to testing the altitude resistance of the nervous system of pilots. A systematic attempt was made to ascertain at which stage of the ascent oxygen must be administered to pilots and crews in order to keep their central nervous performances unimpaired. On the basis of experimental experiences, instructions to air personnel were elaborated with regard to the use of oxygen at relatively low flying levels.

The desirability of using oxygen even at very low altitudes, i.e., from 5,000 ft. upward—the entire Witwatersrand in the Transvaal is situated above 5,000 ft.—is now being generally stressed. Some American research workers have recently presented evidence to the effect that even although gross signs of functional deterioration may still be absent, the body's "adaptation energy" is at this stage already taxed to a

considerable degree. Thus, the airmen's general performance efficiency will not be at its highest level unless measures are taken to make the accumulation even of a

moderate oxygen debt impossible.

It is known that the first oxygen deficiency symptoms leave the victim subjectively entirely unaware of his faculties becoming impaired. It is therefore of supreme importance that objective test methods are now available enabling us to guarantee the highest standard of fighting trim in our airmen during their immensely fast battles at rapidly changing altitude levels, as well as of the best service efficiency of civil pilots and crews.

#### POSTURE AND INTEGRATION OF MOVEMENTS.

Several years before World War No. 1, Dr. Rudolf Magnus, working in the laboratory of Professor Charles Sherrington at Liverpool, became interested in the physiological mechanisms underlying the ability of the animal and human organism to control and direct its postural equilibrium, as well as to co-ordinate The various parts of the body during rest and movement. Subsequently, Dr. Magnus became Professor at the University of Utrecht, where he succeeded, within a few years, in establishing an entirely new branch of physiology. In 1924 he published a book, "Korperstellung," which Professor Fulton has rightly called a milestone in the history of physiology. Professor Magnus succeeded in demonstrating that the central nervous system controls, according to predetermined principles, the motor behaviour of the individual in such a way as to guarantee the restoration of "normal resting positions" after the assumption of unusual postures and after the performance of movements of various descriptions. "Normal resting positions" can, however, only be restored under the assumption that the brain is supplied with information regarding the position of the body, at any given moment, in relation to the direction of gravitatory pull of the earth: the factor g tepresents the fixed point of reference.

When Professor Magnus started his research, he did not consider the applicability of his work to problems of aviation. During the last years of his life, however—his premature death occurred in 1027—he foresaw more clearly than most of his fellow research workers that the conquest of the third dimension would very soon make a detailed study of the interplay between the mechanical phenomena in space and the reflex reactions of the central nervous system necessary. The writer's late teacher. Professor Adolf Loewy who, incidentally, was the first modern physiologist to study medical aspects of thing long before World War No. 1, told in 1031 how, during his last holiday visit to Pontresma, Magnus explained to him his concept of a new "induced"

level of physiological integration being developed in the brain of air pilots.

Uniost twents years have passed since this historical discussion between Professor Looms and Magnus took place. However, it is only now that research in the direction outlined by the latter is being undertaken. It should therefore be emphasized that at the present stage all work done in this field amounts to practically nothing else than the application of Professor Magnus's methods and the utilization of his results to new

In the course of his experimental work. Magnus has laid down four standard physics which domainst are a foreignmental principle underlying the reflex control of the conflict law of the hid is always orientated in reference to the gravitatory which will be a local remaining updefined notwithstanding pro-

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bered that the central nervous system is the one organ of the body whose sensitivity towards lack of oxygen is greatest.

#### OXYGEN MUST BE GIVEN EARLY.

There are other reasons for using oxygen at "low" flying levels, i.e., long before manifestations of oxygen want are likely to occur. Many years ago the writer gave a description of outstanding athletes collapsing unconscious after races over a quarter mile, half mile, or, most of all, after quarter-mile hurdle races. There was little doubt that those breakdowns were in some way or other caused by the acute change from the state of extreme oxygen deficiency, as exists during the final phases of extended sprints, to a condition of full oxygen supply suddenly being restored after the running. As early as 1899, Professor Mosso stated that the marked oxygen want, such as is produced by exercise in high mountain climate, frequently leads to acute collapses. Many athletes have made acquaintance with conditions in which the supply of air through their lungs cannot keep pace with the oxygen hunger of their tissues, which is, of course, very much increased during strenuous exercise. The writer remembers how, on many occasions when running in a four by quarter mile relay he was unable to follow the race of the team mate who took the baton from him, since there was a large, slowly moving black spot in the centre of the field of vision of his eyes. This phenomenon, which medical men call scotoma, is indicative of a state of profound deprivation of oxygen in the blood. G. N. Humphries, writing in Ruttledge's classic Everest Report in 1937, described in the highly trained members of his expedition analogous symptoms produced by exertion at high altitudes, for example when steps were being cut up the North Col.

More recently, certain reports have been made by air pilots to the effect that severe disturbances, even unconsciousness, occur when breathing of oxygen is commenced only, or resumed after temporary interruption, at high altitude. It is quite likely that a number of hitherto unexplained collapses, such as that experienced by Tissandier's companions during their famous balloon ascent in 1875, and by Major Schroeder of the American Army Air Service during his record flight in 1920, thus find an explanation. The importance of this problem has grown with the recent advances of climbing speed and the elevation of the flight ceiling of planes.

The writer has before him the description of the case of a pilot who, having interrupted his artificial oxygen supply in order to attend to a mechanical defect of the engine at an altitude of 20,000 ft., collapsed unconscious in his seat when he resumed breathing oxygen. If individuals subjected to low pressure in the experimental chamber commence breathing oxygen as late as at simulated altitudes of over 15,000 ft., they mostly react with a sudden drop of blood pressure, a slowing of pulse rate, and signs indicative of a profound involvement of the central nervous system. Muscle cramps, tremor, lack of mental determination, deterioration of logical thinking, and, ultimately, collapse with loss of consciousness, have been observed under such circumstances. Such untoward effects are especially likely to occur if the experimental subject has performed muscular work or has been standing erect at "high altitude" prior to the administration of oxygen.

It must be emphasized that the problem under consideration is not that of the effects of oxygen want induced by low atmospheric pressure, which, of course, is bound to manifest itself gradually as high altitudes are reached. The phenomena described in this section are due solely to the sudden impact, as it were, of a full physiological blast of oxygen upon an organism which has been allowed to lapse into a state of partial oxygen deprivation. The conclusion which has been drawn from experiences of this kind corresponds with those made in connection with the results of the previously described studies of the effects of low atmospheric pressure and oxygen want upon the reflex control in the central nervous system. It would be a fatal mistake to wait with the application of oxygen until deterioration of central nervous efficiency has already set in. In fast climbing planes oxygen must be given from the start, in anticipation of the atmospheric pressure deficiency which is certain to make itself felt within a period of a few minutes.

#### Brain Pressure.

Sixty years ago Professor Angelo Mosso in Turin became interested in the case of two young men, Casar Lasagno and Emanual Favre, who had undergone operations on the head necessitating the removal of a large flap of skull bone. After full recovery from the operation, when the skin over the scalp had perfectly healed, one could feel the bony edges of the hole in the skull, through which the pulsations of the underlying brain were readily noticed. Professor Mosso conducted a large number of experiments with these men and discovered that the expansion of the brain inside the skull, "intracranial pressure," is not always the same. Under conditions of everyday life, there are considerable differences, e.g., during sleep and activity, on hot and cold days, or during mental and digestive activity.

In 1881, Professor Mosso gave a classic description of his studies, which, at the time of their publication, were received with considerable interest. The first physician to draw attention of English-speaking medical men to Mosso's book was a young American doctor, Harvey Cushing, who spent some time in Mosso's research laboratory. Cushing became later the "king" among the American neurologists.

Under the impetus of the recent development of medical research in the various physiological aspects of aviation, the problem of "intracranial pressure" under the influence of environmental changes was unearthed. It was found that the pressure inside the skull increases sharply when atmospheric tension decreases, i.e., under conditions such as prevail at high altitudes. This finding helps to explain the mechanism of one of the most common and most annoying disturbances encountered in high altitudes: headache. In most instances the application of oxygen has been found to relieve this symptom immediately. Incidentally, this observation has provided a welcome hint to hospital physicians, who subsequently tried oxygen with success in the treatment of certain types of "ordinary" headache.

Dr. M. N. Walsh, of the Laboratory for Research in Aviation Medicine of the Mayo Foundation in Rochester, conducted tests in the pressure chamber on a patient whose skull was in exactly the same state as those of Professor Mosso's subjects sixty years ago. Under conditions comparable to an altitude of about 30,000 ft., with a barometric pressure of less than one-third atmosphere, the brain was found to have The skin over the hole in the man's head was bulging outward. On "descent" to atmospheric pressure of ground level, the scalp over the opening in the skull returned to its original position. When the air pressure inside the test chamber was increased, as in diving, to a total pressure of approximately one and a half atmospheres, the scalp over the hole in the skull sank approximately 1 cm. below its starting level, indicating that the brain had contracted. It returned to its original position when ground-level pressure was restored.

#### AERO-EMBOLISM.

Engineers engaged in under-water construction, such as bridge-building, salvaging. marine surveying and submarine assembling, know that one of the most important medical problems connected with work under water is that of avoiding certain dangerous pathological reactions frequently seen in divers or workers brought up from below to the surface after having spent some time in an open high-pressure under-water chamber. Numerous cases have been observed in which men collapsed and died on reaching the surface.

The lowest altitude at which symptoms of aero-embolism are being observed is 25,000 ft. The pilot's experience is one of a feeling of "pins and needles," sometimes accompanied by numbness and itching. The first part of the body thus affected is the face, but the feeling may occur in any other region. Subsequently, pain and a sense of a deep localized pressure in one or several joints are experienced, mostly in the ankles and wrists. Not infrequently, the pain gradually becomes intolerable. It will sometimes be described as "rheumatic," while on other occasions, if localized in the mouth, it may resemble toothache. Often the pain is referred to a previously injured bone.

The symptoms above are indistinguishable from those experienced by divers who were "decompressed" too rapidly after working under water. Such divers were subjected to experimentally produced conditions under which aero-embolism is bound to occur. These divers subsequently stated that the symptoms experienced after rapid lowering of atmospheric pressure are the same as those following quick elevation to the water surface.

A close study of this peculiar form of collapse showed that it is caused by the sudden change of environmental pressure. In an open under-water chamber of the type commonly used in bridge-construction, air pressure at 100 ft. below the water

surface is as high as four atmospheres.

Normally, human blood and tissue contain a certain amount of gaseous substances of which nitrogen is quantitatively the most important. The amount of gas harboured in the body is largely determined by the pressure of the surrounding atmosphere. If this pressure changes, the amounts of gas in blood and tissues change accordingly. Elevation of atmospheric pressure leads to the absorption of additional amounts of gas from the surrounding air, but does not readily cause a medical problem. The opposite process, however, namely, the sudden reduction of atmospheric pressure, leads to most serious sequelæ. Nitrogen is liberated in blood and body tissues, and the tendency of the gas to escape is so strong that bubbles are formed which cannot leave the body at any other place than in the lungs. The rate of formation of these bubbles may become so great that respiration cannot cope with them. The dangerous condition of gas accumulating in blood and tissue may result, with brain and spinal cord being, as a rule, affected first.

From the point of view of physiology, it is the same when an under-water worker is rapidly elevated to the surface from 100 ft. below the water as when a pilot ascends from sea level to a height of 30,000 ft. In both cases it is neither the elevation as such nor the change in pressure in itself which creates a medical problem of first magnitude,

but the rapidity of ascent represents the primary and sole pathogenetic factor.

In principle there are two possibilities available to deal with the danger of "aero-embolism." As it is practically only nitrogen which gives rise to the bubble formation in blood and tissues, one can protect a man from this danger by giving him pure oxygen to breathe prior to his being subjected to critical pressure changes. Since blood circulation is well equipped to deal with those physiological problems which are raised by a sudden decrease of tension of a pure oxygen environment, as against the insurmountable difficulties caused by quick lowering of tension of air with its high nitrogen content, an artificial supply of oxygen to fighter pilots before rapid high altitude ascents would solve the problem. However, prophylactic breathing of oxygen is a process requiring at least half an hour's time. This half hour is the crux. The first-line fighter pilot, of course, scarcely ever knows half an hour before the combat when his moment will come.

The second possibility to avoid aero-embolism is simply to ascend slowly, so slowly that no accumulation of nitrogen bubbles can take place in the blood. In other words, the body must be given time to remove nitrogen through the lungs at a rate sufficient to cope with the rate of its liberation in the tissues. For under-water divers, special "decompression" chambers have been constructed for this purpose. During mountaineering, when the rate of climb to high altitudes is counted in days as against minutes in the modern fighter plane, the danger of aero-embolism can therefore never arise. In flying, however, the level of the summits of the highest mountains in Tibet can now be reached in a few minutes, and the body cannot adjust itself so as to prevent bubble formation in blood and other body fluids.

The problem of aero-embolism is not yet fully solved. However, it can be safely stated that we shall soon be able to cope with this difficulty. More cannot be said on this point at the present stage. As on so many previous occasions, science will again

come to the rescue.



#### **BOOK NOTICES**

Amphibious Warfare and Combined Operations. By Admiral of the Fleet The Lord Keyes. (Cambridge University Press; 4s. 6d. net.)

The Lees Knowles lectures given by the author. Treats the subject too sketchily and not without a naval bias.

NAVIGATION FOR AIR-CREWS (Part II). By GLIDDON AND HEDGES. (University of London Press, Ltd.)

An elementary text-book for beginners. Recommended.

Bombers' Battle—Bomber Command's Three Years of War. By A Wing Commander. (Duckworth; 10s. 6d. net.)

In his foreword Air Chief Marshal Harris, by implication, pays a well-deserved tribute to the bomber crews in the phrase "bombing is among the most difficult" (and he might have added "and the most hazardous") "of all military operations." This book deserves to have a wide public within and without the Services. The facts, so far as they can be related at the moment, speak volumes for the high qualities of endurance, perseverance and courage exacted by long-range (strategic) bombing. But the author is concerned with the larger issues, concentrating on these rather than on personalities or individual narratives.

MEDICAL ASPECTS OF AVIATION—SPEED AND ACCELERATION. By CAPT. ERNST JOKL, M.D. (Pitman; 10s. 6d.)

This book is an attempt to explain a specified group of medical problems of flying, namely, those raised by speed and acceleration in the air. The subject has never before been presented in such a way as to be understandable

to those not directly engaged in aviation medcal research; to the pilots and air crews, Air Force personnel, and to the medical practitioners

This book fills an important gap in aeronatical literature and the author has presented the subject in a most fascinating way. The illustrations, of which there are one hundred and twenty-two, allow even the laymen to grasp the subject easily. The book is simply written. Without question this is a book we can highly commend to all in the Service.\*

APPLIED D.R. NAVIGATION. By J. H. CLOUGE-SMITH, B.Sc.(Lond.), with a Foreword by Captain J. C. Kelly Rogers, O.B.E.

The author of this book is a 1st Class Air Navigator and Assistant Navigation Officer. British Overseas Airways. He is well qualified therefore to give practical hints on how to put theory into practice. There is already a spate of books on Air Navigation, but these books for the most part deal only with the theory. In his foreword, Captain Kelly Rogers, himself a 1st Class Navigator, whose reputation as a pilot and long service, first with Imperial Airways and since with British Overseas Airways, place him among the most successful and experienced long-distance fliers still serving, points out that the author has tackled a subject which is the basis of all accurate navigation, whether in service or civil aircraft. He has dealt with the subject thoroughly, and evidence of his thoroughness is the opportunity which he gives the student for exercise. A full and fair examination of this book will convince every competent judge that it is amongst the best of its kind that has yet appeared.

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<sup>\*</sup> See preceding pages, 255-263.





# Bernard Weatherill

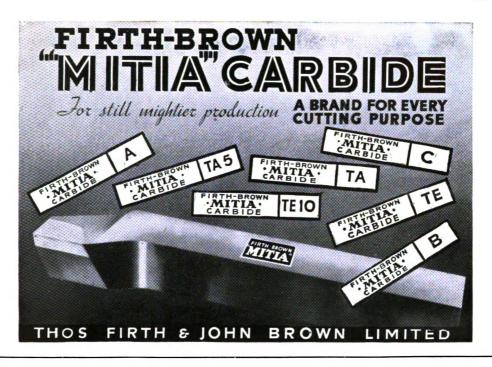
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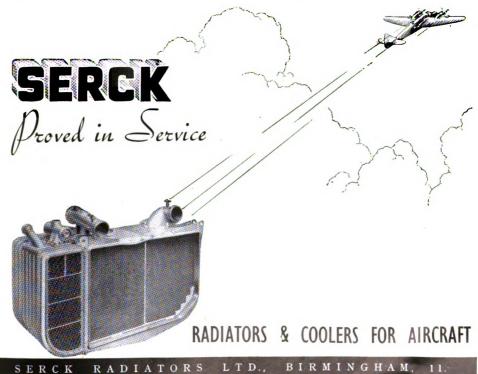
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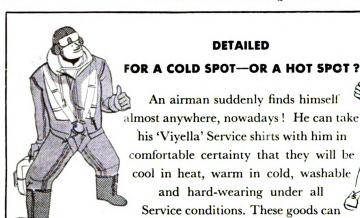


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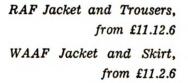
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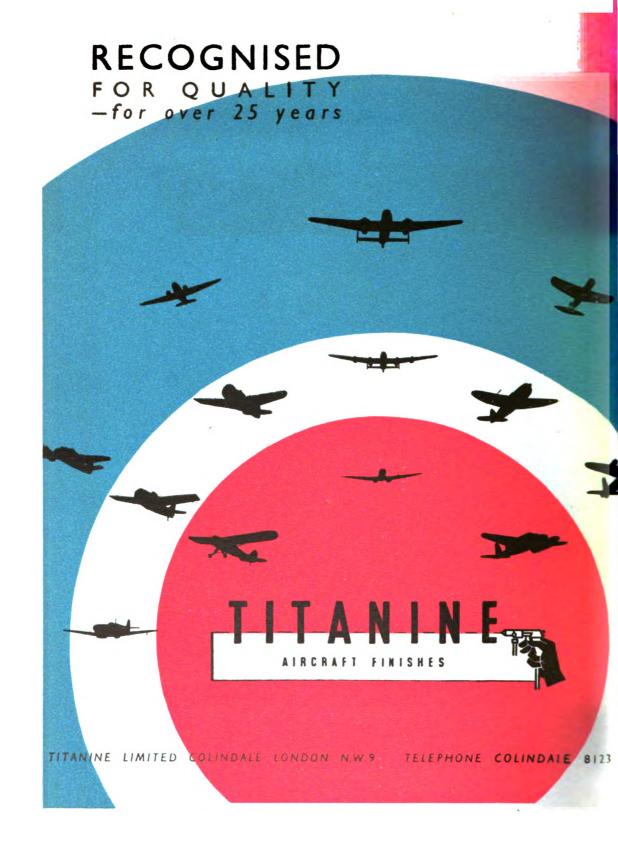


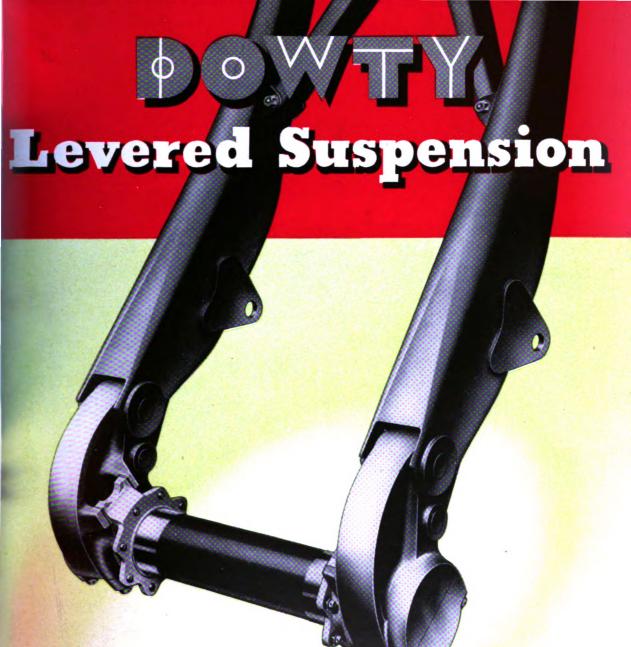
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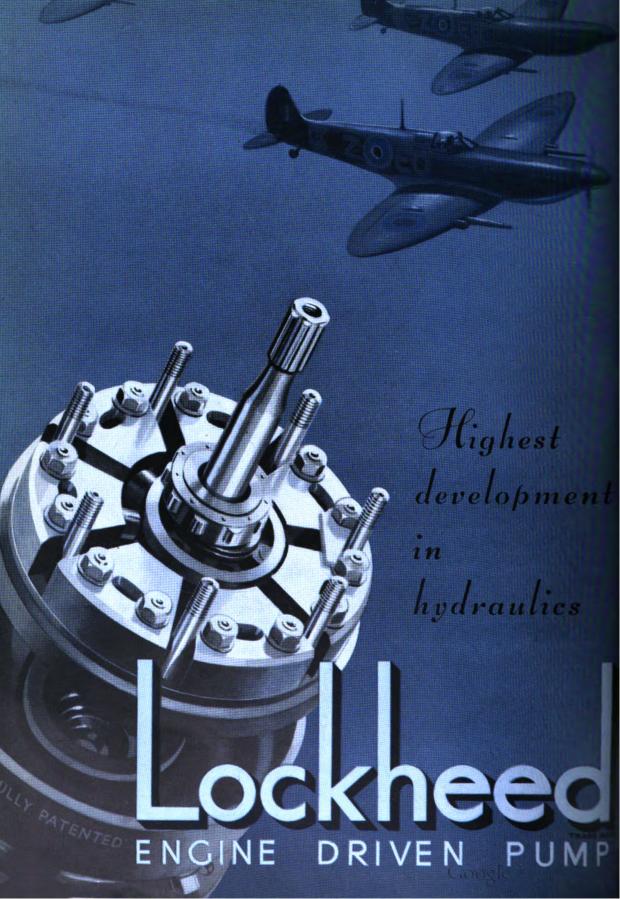




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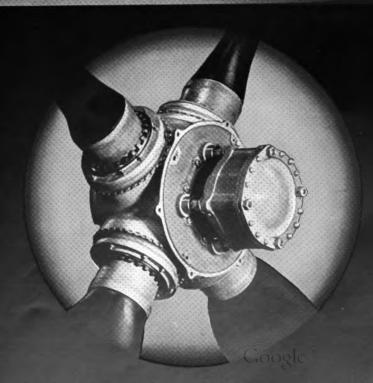
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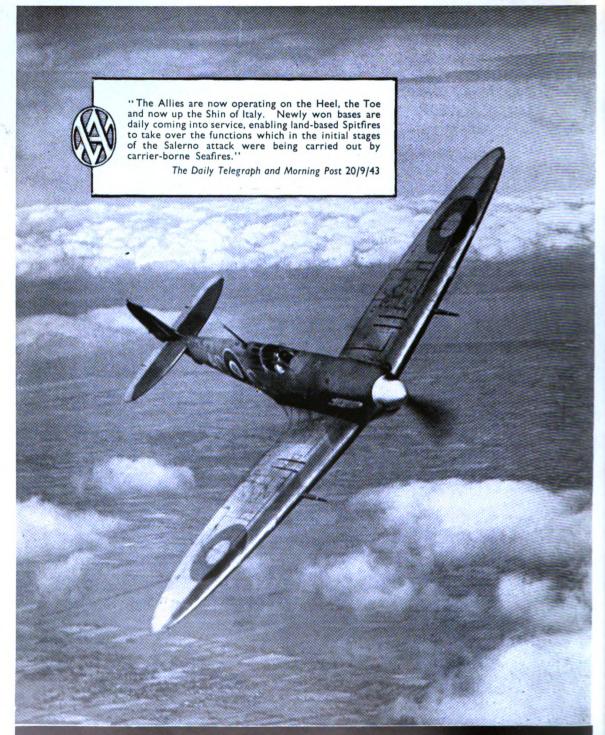
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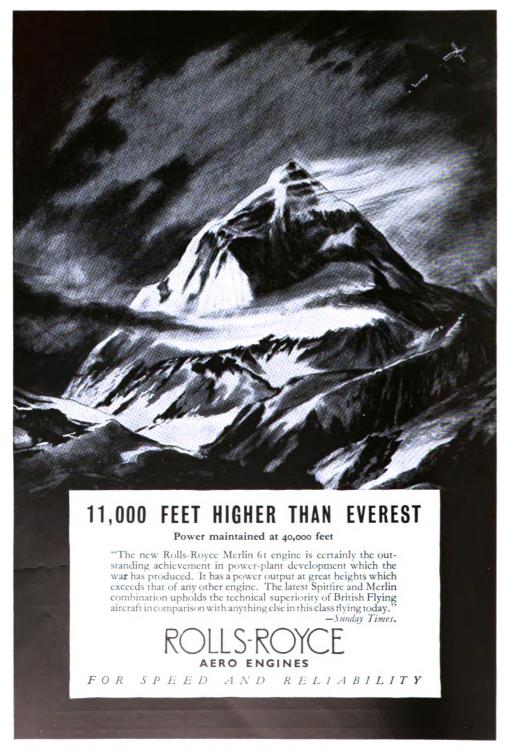
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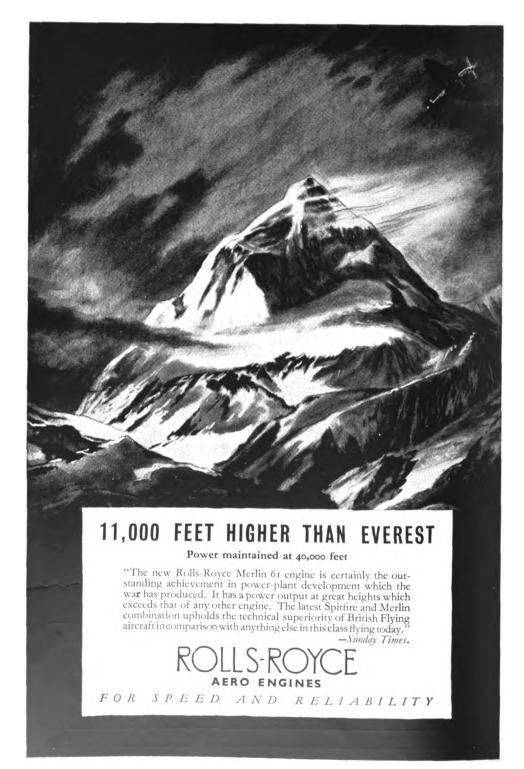
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#### AWARD OF THE VICTORIA CROSS

FLYING OFFICER LLOYD ALLAN TRIGG, D.F.C. (N.Z. 413515) (missing, believed killed), R.N.Z.A.F.

Flying Officer Trigg had rendered outstanding service on convoy escort and anti-submarine duties. He had completed forty-six operational sorties and had invariably displayed skill and courage of a very high order.

One day in August, 1943, Flying Officer Trigg undertook, as captain and pilot, a patrol in a Liberator, although he had not previously made any operational sorties in that type of aircraft. After searching for eight hours a surfaced U-boat was sighted.

Flying Officer Trigg immediately prepared to attack. During the approach the aircraft received many hits from the submarine's anti-aircraft guns and burst into flames, which quickly enveloped the tail.

The moment was critical. Flying Officer Trigg could have broken off the engagement and made a forced landing in the sea; but if he continued the attack, the aircraft would present a "no deflection" target to deadly accurate anti-aircraft fire, and every second spent in the air would increase the extent and intensity of the flames and diminish his chances of survival.

There could have been no hesitation or doubt in his mind. He maintained his course in spite of the already precarious condition of his aircraft and executed a masterly attack. Skimming over the U-boat at less than 50 feet with anti-aircraft fire entering his opened bomb doors, Flying Officer Trigg dropped his bombs on and around the U-boat, where they exploded with devastating effect. A short distance farther on the Liberator dived into the sea with her gallant captain and crew.

The U-boat sank within twenty minutes and some of her crew were picked up later in a rubber dingly that had broken loose from the Liberator.

The Battle of the Atlantic has yielded many fine stories of air attacks on underwater craft, but Flying Officer Trigg's exploit stands out as an epic of grim determination and high courage. His was the path of duty that leads to glory.

Acting Flight Sergeant Arthur Louis Aaron, D.F.M. (1458181), Royal Air Force Volunteer Reserve (deceased).

On the night of 12th August, 1943, Flight Sergeant Aaron was captain and pilot of a Stirling aircraft detailed to attack Turin. When approaching to attack, the bomber received devastating bursts of fire from an enemy fighter. Three engines were hit, the windscreen shattered,

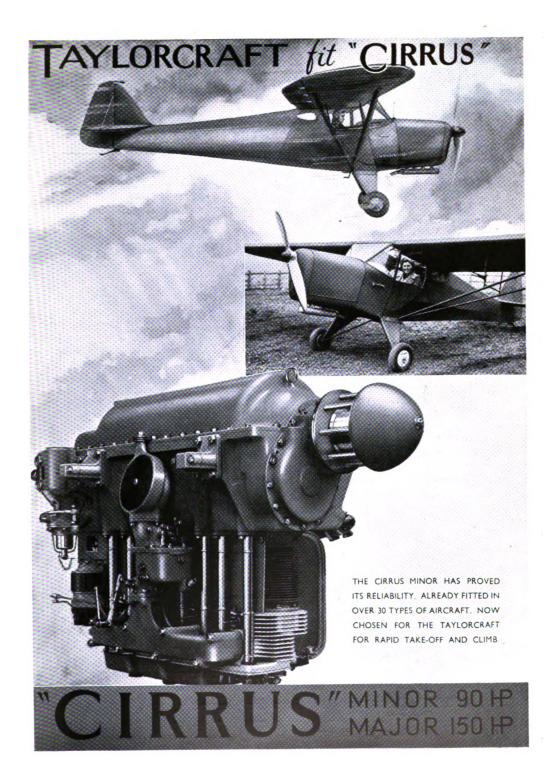
the front and rear turrets put out of action, and the elevator control damaged, causing the aircraft to become unstable and difficult to control. The navigator was killed and other members of the crew were wounded.

A bullet struck Flight Sergeant Aaron in the face, breaking his jaw and tearing away part of his face. He was also wounded in the lung and his right arm was rendered useless. As he fell forward over the control column the aircraft dived several thousand feet. Control was regained by the flight engineer at 3,000 feet. Unable to speak, Flight Sergeant Aaron urged the bomb aimer by signs to take over the controls. Course was then set southwards in an endeavour to fly the crippled bomber, with one engine out of action, to Sicily or North Africa.

Flight Sergeant Aaron was assisted to the rear of the aircraft and treated with morphia. After resting for some time he rallied and, mindful of his responsibility as captain of aircraft, insisted on returning to the pilot's cockpit, where he was lifted into his seat and had his feet placed on the rudder bar. Twice he made determined efforts to take control and hold the aircraft to its course, but his weakness was evident and with difficulty he was persuaded to desist. Though in great pain and suffering from exhaustion, he continued to help by writing directions with his left hand.

Five hours after leaving the target the petrol began to run low, but soon afterwards the flare path at Bone airfield was sighted. Flight Sergeant Aaron summoned his failing strength to direct the bomb aimer in the hazardous task of landing the damaged aircraft in the darkness with undercarriage retracted. Four attempts were made under his direction; at the fifth Flight Sergeant Aaron was so near to collapsing that he had to be restrained by the crew and the landing was completed by the bomb aimer.

Nine hours after landing, Flight Sergeant Aaron died from exhaustion. Had he been content, when grievously wounded, to lie still and conserve his failing strength, he would probably have recovered, but he saw it as his duty to exert himself to the utmost, if necessary with his last breath, to ensure that his aircraft and crew did not fall into enemy hands. In appalling conditions he showed the greatest qualities of courage, determination and leadership and, though wounded and dying, he set an example of devotion to duty which has seldom been equalled and never surpassed.



#### A HEROINE OF BOMBING

MISS DOROTHY ROBSON, who was killed recently while on a test flight, held an unusual position in the world of war-time flying. She was as much in the Royal Air Force as any pilot yet, as a civilian, she was not of it. An expert in the testing of bomb-sights in operational aircraft, she was employed in the Royal Aircraft Establishment, and her time was spent in touring the bomber stations in her mobile workshop—a van, with two R.A.F. instrument mechanics.

Usually wearing a parachute harness over blue slacks, blouse and cardigan, she had many flying hours to her credit, both on test flights and in bombing practice on the ranges. She was a regular visitor to bomber stations, moving from squadron to squadron, lecturing to, and flying with, the bomb-aimers.

An officer who knew her well has given the following appreciation: "At first it seemed quite extraordinary to have a civilian girl working with us. She was small and vivacious, and not at all the type one expected to find in dirty workshop overalls, still less in a bomber, where she was obviously quite at home. But it wasn't long before we began to have a great respect for her vast knowledge. We began to look forward to her visits, and soon she passed that inevitable test of collective affection—she was given a nick-name, 'Bomb-sight Bertha.' It was no easy job, of course, for a civilian girl to work among flying men. She used to say that it embarrassed her to lecture the bomb aimers. But she never showed it, and her manner was conversational and easy. The crews learned a very great deal from her. We shall miss her cheerfulness at interrogation in the early morning hours, and we shall miss her skill and her charm. Many of us are mourning herground-staff mechanics and men of every rank in the flying crews."

Miss Robson, whose home was at Hartlepool, graduated at Leeds University with a physics degree, and volunteered for a technical commission in the W.A.A.F. Her particular abilities, however, caused her to be at once recruited for this specialist work. She had flown in many types of aircraft, but she was especially fond of heavy bombers.

#### R.A.F. BENEVOLENT FUND

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		G	rand	Total			£521	5	0	

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News from Parliament.

#### FLEET AIR ARM OFFICER'S FINE SPEECH

From our Special Correspondent.

It was generally agreed by experienced Parliamentarians that Commander Brabner, D.S.O., of the Fleet Air Arm, who moved the Address in reply to the King's Speech in the House of Commons on November 25th, made one of the best speeches that has been heard on this auspicious occasion for many years. The young Conservative member for Hythe (he is 32) speaks with eloquence and vigour and with a sincerity that gains him the ear of all sections of the House. Furthermore, his stock has stood very high since the occasion when he returned from Crete to give the House a first-hand account of the battle there in a speech which will long be remembered as an outstanding Parliamentary performance. It is regretted that his duties do not permit him to speak more often.

The burden of his speech in moving the Address was that the young men returning from the war should be given a task equal to the mood which years of action and danger would have engendered in them. They would return in a vigorous state of mind which was a mixture of self-confidence, pride in service and a willingness to do anything. Those who had become accustomed to insecurity were hardly likely to be attracted by the plain prospect of a respectable and humdrum post-war society. "I hope [Commander Brabner continued] we shall turn our thoughts to more active things for them, more in tune with their state of mind and development. Can we not inspire them with the prospect and opportunity of a peace turbulent with the pursuit of an effective peace? I cannot believe they will be content with anything less."

He recalled a saying of Lawrence of Arabia after the last war that youth was good at winning, but had not learned to keep and was pitiably weak against age. If left to themselves our young men might be equally weak this time. There were cheers when he added: "I hope we can offer them a clear, assured prospect of opportunity and activity, and that we can say to them that we are going to work in peace as we have in war, that we are going to open up our Empire by air, by sea and by trade and that we are not going to liquidate it."

They would want to play their part in the affairs of the country and would be eager for contacts in America and Russia. He was sure they would be inspired by the prospect of eventual common citizenship which the Prime Minister had indicated. If in the course of time those who had done their fighting could help this aim to be realized and graft on it a sturdy and tolerant nationalism, then they would have proved themselves good men and good citizens of the world, concluded Commander Brabner amid cheers.

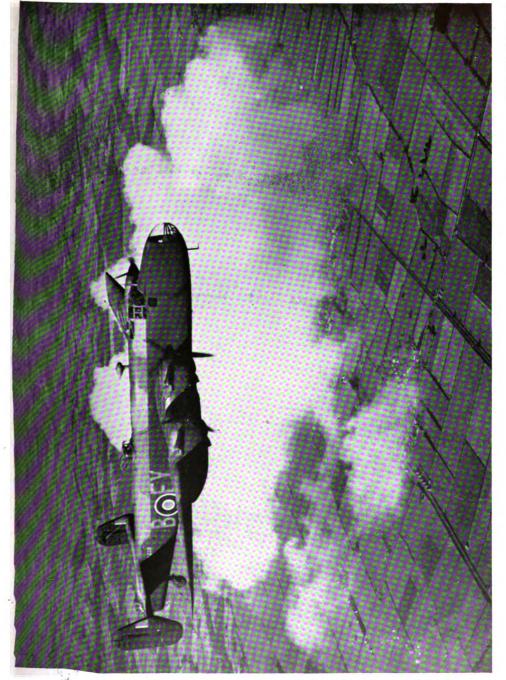
In the subsequent debate, Commander Brabner was warmly complimented on his speech by Mr. Attlee, the Deputy Prime Minister, Mr. Pethick Lawrence, from the Labour front bench, and other speakers.



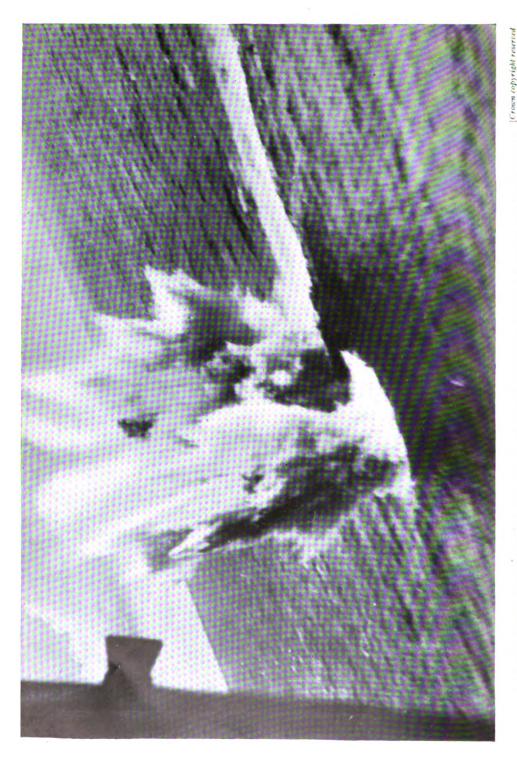
# In the attack today

On the trade routes of the future

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#### VICTORY OVER THE U-BOAT

THE U-boat is always with us but it is no longer the harbinger of defeat that it appeared to be in the last war and threatened to be in this. It has been mastered and virtually beaten though we shall undoubtedly receive from this once dominant weapon some sharp kicks before the struggle ceases. So much may be safely concluded from the recent joint statements by Mr. Churchill and President Roosevelt and the speech which the Prime Minister made in the House of Commons on 21st September. In the announcement covering May, June and July it was disclosed that the Allied sea and air forces had sunk ninety submarines in as many days. In his Commons' speech, Mr. Churchill said that in the four months to 18th September no vessel was sunk in the North Atlantic by enemy action, and in the first fortnight in September no Allied ship was sunk by U-boats anywhere in the world. Then on oth October a joint statement said that the average merchant ship losses from all causes in August and September was the best record of the war. In the convoy battle which began on 19th September and lasted four and a half days a pack of fifteen U-boats sank three escort vessels and a small number of merchantmen, but vigorous counter-measures by sea and air escorts resulted in a larger number of U-boats being sunk or damaged. This action followed a four-months' lull in the U-boat attacks in the North Atlantic, a hiatus which some interpreted as a sign that the great battle had been at last won by the Allies while others, more cautious, preferred to regard it as an admission by the enemy that his losses were dictating his strategy. This may well be the case. The number of enemy submarines (mostly German) sunk or damaged at sea is impressive. Mr. Alexander, First Lord of the Admiralty, in three statements last year gave a total of 600, to which can be added the ninety already mentioned and also the unknown numbers in those months of 1943 for which no figures have been given. Admittedly, the proportion of sunk to damaged is not known and cannot be guessed with any profit. But recent accounts of convoy battles indicate that a high percentage of the U-boats attacked in such actions are definitely destroyed. Assuming that some damaged boats reach base, they may there be exposed to air attack which has the power to make repair out of the question by striking not necessarily at the submarine itself but at the installations and labour on which it depends for a new lease of life.

Indeed, the aeroplane can be said to have replaced the submarine as the dominant weapon of modern war. The Battle of the Atlantic would surely not now be running so swiftly in the Allies favour but for the fact that air power has been used on a vast scale in a tremendous effort to reduce the enemy's great forces to impotency? And not only at sea has the aeroplane fought the submarine. The successes of this summer can, in part, be attributed to the persistent campaign which Bomber Command of the R.A.F., and more recently Bomber Command of the U.S. 8th Army Air Force, has waged against the building yards, the Atlantic bases, and the inland factories which supply the parts. This policy has been followed through difficult times and it has been justified. Frequently in the past the demands of Coastal and Bomber Commands have conflicted; the one needed the aircraft to bomb Germany, the other to hunt out and strike at the submarine at sea. Someone had to judge the position, balance the known factors and make a decision. Bomber Command was obliged to peg away with its available strength doing what damage it could, always interrupting and confusing German industry, and particularly U-boat production, but never, perhaps, until this year, getting its chance to cause total destruction. But the cumulative effect of the bombing was undoubtedly felt; production was retarded in a series of attacks which were simply gaining time while the force gathered strength for the knock-out blows. One of these was delivered at Hamburg in July of this year.

1914-39—FOUNDATIONS OF POLICY.

In a sense the battle between the aeroplane and the submarine was resumed in 1939 at the point at which it was broken off in 1918. The foundations of the role of air power in anti-submarine warfare were laid in 1917 and 1918. "Early in 1918," says the Official History, "a general policy was laid down for the use of aircraft against the submarine, particularly with reference to (1) coastal areas; (2) barrage;

(3) deep sea work, and (4) attacks on enemy bases. The policy prescribed an organization for the protection of shipping and for the patrol of coastal waters by all types

of aircraft in co-operation with surface craft."

The new policy assigned specific tasks to the various types of aircraft: kite balloons for convoy escort and co-operation with hunting flotillas; airships principally for escort duties; aeroplanes for inshore patrol (up to twenty miles from the coast); seaplanes to work further seaward, carrying out sweeps and co-operating with surface craft; a specially equipped squadron to be ready for action on receipt of intelligence regarding the movements of U-boats and a Flight standing by to make an attack anywhere within range. Bases on the Belgian coast were to be bombed as often as possible by the R.N.A.S. units at Dunkirk.

Such a programme required a large number of aircraft. It absorbed what the official historian described as a "vast amount of air strength." The programme called for more than a thousand planes, but it was not fulfilled. When peace came in November, 1918, there were at action stations only 285 seaplanes and 272 aeroplanes. Nevertheless, the new intensive measures had not been without success. In Home Waters in 1918 there were 192 sightings of enemy submarines from the air, of which 163 were by seaplanes and aeroplanes, twenty-three by airships and six by kite balloons. One hundred and thirty attacks were made by aircraft and surface craft and five

submarines were sunk (two of them by aeroplanes) and twenty damaged.

The previous year, 1917, had seen the inauguration of the now familiar patrol known as the "Spider's Web"—the cross over which has been flown since the beginning of this war. It was started in the April of 1917 when the sinkings of merchantmen round our coasts were averaging five a day. It embraced a possible area of four thousand square miles and when it started there were only five flying-boats available. These were the "Large Americas," a development of an American Curtiss flying-boat brought over to Britain for experimental purposes by Commander J. C. Porte. There is an interesting parallel between the use of this machine and its little brother, the "Small America" in the pioneer work against the submarines and the use of the Hudson in this war. It was a "Large America" that claimed the first sinking of an enemy submarine by an aircraft, although in fact the claim was not confirmed until January, 1919. The attack took place in May, 1917, about five weeks after the "Spider's Web" patrol began. Regarded then as a "long-range job" the "Large America" was very useful but it was never available in sufficient numbers owing to the lack of suitable engines.

The counter measures of 1917 and 1918 brought about a diminution of submarine activity but the German campaign continued until the end of the war to exert a dominating influence on Naval Air Policy. Just as in this war a similar emergency has dominated the British and Allied naval and air policies to a considerable extent. The foundations of the close co-operation between the Royal Air Force and the Royal Navy were laid a few years before war began with the formation of Area Combined Headquarters. An even closer working arrangement was arrived at early in 1941 when Coastal Command, while remaining an R.A.F. Command, came under the operational control of the Admiralty. In practice this means that the general policy direction of Coastal operations over the sea is in the hands of the Admiralty, while the Commander-in-Chief Coastal Command is responsible for the carrying out of these directions.

When the present war began the numerical strength of Coastal Command's antisubmarine force was much smaller than the force at the disposal of the R.N.A.S. in 1918. The number of aircraft available was only 171. There were five flying-boat squadrons, seven Anson, two Vildebeest and half of a Hudson squadron. Long-range work fell to the Sunderlands from the outset, but in 1939 the distance they could fly from base was not great by present standards. Far out in the Atlantic, now covered by shore-based aircraft of great range, the protection of shipping was carried out by the Fleet Air Arm operating from Royal Navy carriers, and in the first four months of the war their aircraft covered more than seven and a half million square miles. Inshore patrols off the East Coast of Britain were for some months flown by Tiger and Hornet Moths with an endurance of about two hours and a half and a petrol capacity of fourteen gallons. The pilots of these old aircraft did a grand job under

extremely trying conditions during the winter, and in one of these months the Moths flew 698 hours on patrol. Great reliance was placed on the Hudson, which began to arrive from the United States in useful numbers soon after the war began; the original squadron, rapidly increased from half to full strength, flew a million miles in less than twelve months.

#### THE BATTLE RESUMED.

In spite of the small and antiquated force available in September, 1939, effective patrols and counter-measures were organized and at once put into practice due to the fortunate circumstance of Coastal Command being fully mobilized a fortnight before the outbreak of war. An exercise had been laid on for the last fortnight of August. In fact the war was but a few hours old when an aircraft attacked a submarine. More than a score were attacked in the first month. In those days successes were frequently announced. There was one on 29th September, two on 23rd October, another in December, the latter being sunk by a single bomb 150 miles from land. One of these early reports spoke of a ton of bombs being dropped upon a U-boat by a single aircraft, a fact which may have reminded last war pilots of the days when they could count on splitting a submarine's plates with a 20-lb. bomb. But after the first few months of war less was said about our successes. It was realized that one of the factors which contributed to the failure of the U-boat campaign in the last war was the decline in morale of crews due to the uncertainty caused by lack of information. So the policy of making only occasional and deliberately belated announcements was restored. There was a statement in January, 1940, by the French Minister of Marine in which he said that the Allies had then sunk thirty U-boats.

During 1940 Coastal Command's anti-submarine forces were gradually built up. The Catalina, a machine capable of remaining in the air for more than twenty-four hours at a stretch (as one did when shadowing the Bismarck) was a valuable addition and the Hudsons were rolling in. The Royal Australian Air Force's Sunderland squadron, early in action, claimed two of the very few sinkings which the authorities permitted to be made public during the year. Meanwhile the Command was extending its field of operations. (Soon it would cover more than three million square miles of sea, and later still nearly six million.) The call was for greater and greater range. The Catalina was one answer; improved Sunderlands were another. From the restricted patrols round the British Isles the field was extended as more and more of Europe fell to the Nazis. Norway and Denmark went, and the Command reached out to the Arctic Circle. France and the Low Countries fell and the beat was elongated so that by the autumn of 1940 it stretched from the Arctic to the Equator. The gaps in the Atlantic had still to be bridged and that was to be achieved later, and finally three

years later.

#### TOWARDS THE OFFENSIVE.

In these early months Coastal Command's role was primarily defensive, or non-offensive. Shipping was suffering heavy losses from U-boats, mines and air attacks, and it had to be protected. It was necessary, among other factors, that numbers should increase before the change over to the offensive could be made. It was a very gradual process. But the time was to come—in the summer of 1942—when Coastal Command was to assume the proportions of an air force within an air force with a numerical strength greater than that of the whole of the R.A.F. on the outbreak of war. The years 1941-42 saw the addition to its ranks of two more American types, the Liberator and the Fortress, while Bomber Command handed over many of its Whitleys, Wellingtons and Hampdens. This was a sacrifice demanded by the needs of the moment; the life-line had to be kept intact.

In the spring of 1941 our shipping losses in the Atlantic assumed dangerous proportions. The U-boats had resorted to the now familiar pack tactics. By the end of 1941 the combined efforts of the Royal Navy—about whose magnificent work in this field so little is known—and the R.A.F. had called a temporary halt to the onslaught. By the autumn of 1941 Coastal Command aircraft had attacked 260 U-boats;

by July, 1942, the figure was 400, and in that month the offensive character of the anti-submarine warfare was revealed in the statement that for every aircraft engaged in escorting shipping four were carrying out anti-submarine patrols. In one month in the summer of 1942 aircraft attacked thirty U-boats.

It was in the summer months of 1942 that Coastal Command concentrated on the Bay of Biscay, where they found U-boats travelling to and from their bases on the French Atlantic coast. The long-range forces of the Command were supplemented by the Halifax, and these new offensive tactics paid good dividends. It was estimated that one in every three U-boats crossing the Bay was attacked. The Germans were stung into counter-measures; they sent fighters to intercept the Coastal aircraft (as they had done when the "Spider's Web" patrol was started in 1917) and for this work they used Junkers 88's, Arado float planes, Messerschmitts and occasionally F.W. 190's. The Arados and the Junkers were the most prominent types and they were not successful; their chances were spoiled by the appearance of the Beaufighter. The Biscay patrol has been maintained and extended, and Luftwaffe intervention has not reached disturbing proportions. The heavily armed flying-boats and bombers, sometimes outnumbered by as much as six to one, are able to give a very good account of themselves, while the recent appearance of the Mosquito in this battle area has reduced the chances of the less efficient German fighter types.

During 1942 the Command's aircraft flew over 188,000 hours and more than twentyfive million miles, mostly on anti-submarine patrol, the number of these patrols being well over 12,000. More than 300 attacks were made on U-boats, and of the total number of attacks by all forces which were estimated to have caused damage or destruction more than half were made by aircraft. It was a year of considerable strategical and tactical development, the fruits of which have been the successes of this summer. The dominating problem was the closing of the mid-Atlantic gap, an area beyond the reach of shore-based aircraft which the U-boats began to exploit when their activities off the eastern seaboard of America in the first six months of the year began to show a diminishing return. In the first six months of 1942 sinkings in those eastern waters were at times three-quarters of the total Allied shipping losses. But the United States air forces and the Royal Canadian Air Forces checked these losses and at the same time the Royal Air Force was making it unsafe for U-boats to operate within a radius of 300 to 400 miles of British shores. It was on account of the increasingly important part which the air was beginning to play in anti-submarine warfare that Mr. Churchill in the autumn of 1942 decided to reconstruct his Battle of the Atlantic Committee, which in its new form had the title Anti-U-boat Warfare Committee. The members of the Committee are the Prime Minister, the Minister of Aircraft Production, the Minister of Production, the First Lord of the Admiralty, the Secretary of State for Air, the Minister of War Transport, the First Sea Lord and the Chief of Air Staff with technical advisers. Its function does not in any way conflict with the direct conduct of the war against U-boats by the Admiralty, but in view of the technical developments that have and are taking place its purpose is, as Mr. Churchill explained in the House, "to focus and emphasize the need for supreme exertions and to make sure there is proper concert between all authorities.'

The year's work was crowned by the outstanding success of the anti-submarine measures taken to protect the great convoys which took the Allied forces to North Africa in November. Not a single ship was lost; not a single ship was attacked until Gibraltar had been passed and the convoys in the Mediterranean. By maintaining constant day and night patrols land-based aircraft of Coastal and Bomber Commands and long-range flying boats in co-operation with the U.S.A.A.F. and the Fleet Air Arm succeeded in neutralizing the threat of U-boat attack before it could develop. Once they had recovered from the surprise of the bold progress of our convoys the U-boats regrouped for action. They were met by so determined and powerful an attack that more than thirty were sunk or damaged. Co-operation between the R.A.F. and the F.A.A. was perfect. Mr. Alexander, giving one example to the House of Commons, described how a U-boat was attacked by a Hudson and disabled on the surface. The Hudson had to return to base but the news of the submarine's position was passed to an aircraft carrier which immediately dispatched an Albacore.

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## 1943—THE APPROACH TO VICTORY.

The experiences of 1942 crystallized into one profound resolution: the Allied air mastery must be used finally to crush the U-boat wherever it might be found. Three problems had to be tackled: (1) submarine production, which some asserted was keeping pace with or even exceeding sinkings, had to be checked; this would be the task of Bomber Command of the R.A.F. and the U.S. 8th Army Air Force (how they set about it will be described later); (2) the need for more aircraft for Coastal Command for all purposes, and particularly types with greater range; (3) more aircraft carriers were required to co-operate with the long-range shore-based aircraft in closing the still potentially dangerous gap in mid-Atlantic. The answers to all three problems were forthcoming. The new offensive against the U-boat was pressed with all speed. The intensive bombing of bases and production centres began at once; the very long range Liberator was operating before midsummer; complete shore-to-shore cover across the Atlantic by land-based Anglo-American air forces and the F.A.A. was announced in July.

The year began on a note of confidence. Sir Archibald Sinclair declared that the aeroplane was our most potent weapon against the U-boat. No U-boat, he said, dare show itself on the surface within 300 miles of our shores. The struggle would be bitter but our methods were constantly improving (the Leigh light for night interception was then in use). On 11th February, Mr. Churchill stated that the task of overcoming the U-boat had been given first priority in all British and American plans, and very heavy blows had already been struck. In the same month the Air Ministry reported a falling off in Luftwaffe support of the U-boat campaign. A fierce convoy battle was reported in March. A pack estimated to number twenty U-boats attacked our ships by night. In an engagement lasting four days and nights they were beaten off by air and naval counter-measures, and the convoy sustained only small losses. Another and even fiercer battle was reported in April and the account contained the significant sentence: "The attack began outside the zone of air protection, and losses were sustained." But once the ships came within range Coastal Command delivered an all-out offensive and in four days claimed nineteen attacks. "There is not the least doubt that they (our aircraft) saved a large number of ships," signalled the A.O.C. Coastal.

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There followed the series of joint statements by Mr. Churchill and President Roosevelt, already mentioned. These gave news of increasing success. One of them pointed out that in the first six months of 1943 the number of Allied ships sunk per U-boat operating was only half that in the last six months of 1942 and only one quarter that in the first half of 1942. The joint announcement that ninety U-boats had been sunk in three months was followed by a statement from the U.S. Navy Department that twenty-nine of them were destroyed by U.S. forces, and of that twenty-nine no less than twenty-five by aircraft—five by Army planes, eleven by long-range naval planes and nine by planes from carriers.

These figures show how intensive the air attack has become—and how successful. In this connection Lord Trenchard recently stated that in three months 50 per cent. of the U-boats destroyed in the Atlantic and the Bay of Biscay fell to air power. Two further announcements may be quoted. On 7th September a communique stated that of seven U-boats destroyed in the Bay six were sunk by aircraft. On 28th September the United States Navy Department described how an Avenger bomber flown from an

escort carrier sank three submarines and damaged a fourth.

To this powerful and widespread air/sea attack the Germans seem to have no effective reply. The Luftwaffe is powerless to help the U-boat; its attempts at protection by fighters in the Bay of Biscay have not succeeded. Equally unsuccessful have been the U-boat's tactics in trying to beat off attacking aircraft with gunfire, and in the matter of strategy German hopes—if they still have any—received a severe knock when the Allies were granted the entrée to the Azores. The acquisition of these bases means as far as the air is concerned that land-based aircraft can now provide strong cover anywhere in the North Atlantic; the gaps previously closed by aircraft from escort carriers and/or very long range Liberators flying to the limits of their range can now be completely covered from the Azores.

## THE ATTACK ON LAND.

Side by side with the destruction at sea must be placed the destruction on land. Bomber Command has been backing-up Coastal Command ever since war began with an increasing weight of attack. It has for long periods devoted 40 per cent. of its strength to the task; sometimes as much as 70 per cent. There have been three main objectives: (1) the factories making U-boat engines, equipment and parts; (2) the building yards and slipways; (3) the bases on the Atlantic coast. In dealing with targets in categories (2) and (3) Bomber Command have, since the autumn of 1942, been assisted by the United States Eighth Army Air Force which, particularly during the Battle of the Ruhr, completely relieved the R.A.F. of the responsibility for impeding U-boat production.

As was described in the last issue of this Journal (in "The American Bombing Effort") the U.S.A.A.F. devoted its considerable strength almost exclusively to bombing ports in Germany and bases in France from mid-March till the end of July. 1943, during which time Bomber Command made no attacks on these targets. The value of this contribution was acknowledged to be very great. The Americans had previously made a number of raids on the French Atlantic bases in the autumn and winter of 1942, when they were stretching their wings in Europe, and in the three months October to December they made four raids on St. Nazaire, three on Lorient,

two on La Pallice and one on Brest.

Bomber Command's attacks in 1940 and 1941 were not heavy but there can be no doubt that U-boat production suffered some disturbance, not much perhaps, but what was achieved with the forces available was a definite contribution to the ultimate result. There were many attacks on the Atlantic bases, and by July, 1941, Lorient had been visited forty-four times. There was evidence that repair work there was being hindered. In 1942 there were 256 attacks on fifty-three U-boat targets in France and Germany. Some were heavy. The port of Bremen had one of the three 1,000-bomber raids, and Cologne, where there are two or three important engine and equipment factories, another. The other Baltic coast building centres—Hamburg. Emden, Kiel and Wilhelmshaven—were attacked many times and occasionally in strength. In April of that year a daring daylight raid—an experiment in precision

bombing—was made on the M.A.N. factory at Augsburg by a force of twelve Lancasters, eight of which arrived and bombed. This factory turned out more than 50 per cent. of the Diesel engines for German U-boats and the successful attack retarded diesel production for months. It earned Wing Commander Nettleton the V.C. Another direct blow at the U-boats by precision bombing was the raid by a small force of Mosquitoes on the optical instrument works at Jena in May, 1943. The effect of such attacks and those on the great industrial centres is cumulative; it may be months before it is felt in the assembly parts which, as a result of a raid on a target in Southern Germany months earlier, may suddenly find themselves short of vital equipment. So Bomber Command pursued its war of attrition against the U-boats. An official survey of 1942, referring to the diversion of an appreciable proportion of the Command's effort to anti-submarine and convoy escort work, stated that the former of these activities "has paid no dividend comparable to what is known to have been achieved by mining the channels and bombing the factories and bases which are the source of the U-boat disease."

When the opening of 1943 found the Allies determined on an all-out effort against the U-boat, Bomber Command and the U.S.A.A.F. immediately set about Lorient and St. Nazaire, the principal bases on the French Atlantic coasts where the Germans had built deep pens to protect U-boats undergoing repairs. It has been realized that precision attacks on these pens were a waste of effort, for they were built to withstand everything but the hit in a million by a very high-powered bomb. Consequently the port installations, power houses, workshops and so forth were subjected to a series

of determined onslaughts.

The following excerpts from official reports indicate the intensity of the effort in January and February. The report for January stated: "Much of the effort expended by the three principal home commands was directed against U-boats at sea, in their bases and in production as well as the communication and ancillary services which lie behind them. Many of the attacks made on land communications would affect the efficient working of the enemy's U-boat bases and ports of call. Five night attacks were made in force on the U-boat base at Lorient and the U.S.A.A.F. once bombed this base in daylight. Lorient is Germany's most important submarine base in France. The existing pens hold twenty submarines, a third under construction would accommodate another ten, and the workshops there undertake major repairs. Over a thousand tons of bombs were dropped on Lorient in four night raids. Harbour installations, repair shops, foundries, power stations have been severely damaged."

For the first fortnight of February: "The three principal home commands continued to direct much of their effort to striking at and warding off the enemy's U-boat effort. Consistent attacks on enemy communications also assisted in hampering the organization of this effort. Bomber Command made heavy attacks on three nights, mounting in weight, on the U-boat base at Lorient, dropping over 1,000 tons of bombs on the third night. Night raids were also made in force on the port and yards of Hamburg and Wilhelmshaven. U-boat components are also among the chief products of Cologne, raided twice. Of the bombing sorties sent out by this Command in Northern Europe by night during this fortnight, approximately 75 per cent. were sent on the raids on Lorient, Hamburg and Wilhelmshaven.

"In the second half of February some 60 per cent. of the night sorties of Bomber Command were directed against the U-boat bases and ports of Wilhelmshaven (three attacks), Bremen (one attack), Lorient (one attack) and St. Nazaire (one attack). Of the remaining bombing effort by night almost the whole of it was contained in the two heavy raids on Nuremberg and Cologne where U-boat components are made. In addition to the devastation caused by the Mariensiel arsenal explosion at Wilhelmshaven, sheds and stores in the naval base and dockyard and in the Commercial Harbour were hit. All the workshops in the western half of the Deutche Werke, a modernized shipbuilding yard used for refitting submarines, E. boats and other light naval craft were severely damaged."

The intensified campaign thus begun by the reduction of Lorient and St. Nazaire has been continued without respite for the enemy. Throughout the spring and summer the U.S.A.A.F. hammered at the Baltic ports and shippards. Bremen, Danzig, Emden,

Hamburg, Kiel, Vegesack and Wilhelmshaven were their targets. Vegesack, where damaged was inflicted upon thirteen U-boats in various stages of construction on the slipways, was described by a Royal Air Force spokesman as "an American triumph." At the same time the R.A.F. was causing great devastation in the inland industrial centres in which were many objectives connected with U-boat production. Factories turning out engines, batteries, magnetos, precision instruments and all manner of parts were damaged at Cologne, Stuttgart, Mannheim, Munich, Nuremburg and Hagen. while the attacks on the Ruhr steel towns were also an important contribution. But the greatest single blow at the U-boat industry was the destruction of Hamburg. In this the two air forces combined. The R.A.F. made three night attacks, dropping seven thousand tons, and the U.S.A.A.F. made two day attacks, the total tonnage dropped being about 9,000. The results are too well known to need reiteration here; in brief, the devastation of Hamburg meant serious interruption of the means of producing one-third of her submarines.

There are two other activities of Bomber Command in the anti-submarine campaign which may be mentioned in conclusion—minelaying and patrols. Minelaying is carried out with great regularity and there have been some particularly large operations in the Baltic. It is there that the U-boats are given their trials, and apart from the actual destruction caused by mines (of which in the circumstances little can be known) there is the effect on the morale of the untried crews obliged to do their training in

such dangerous waters.

Bomber Command's anti-submarine patrols supplement those of Coastal Command. Official figures have shown that in six of the first seven months of this year these patrols were flown on 152 days out of a possible 185. There is a further contribution—the bombing of airfields in France from which German long-range fighters operate against our Biscay patrols. To which can be added the work of Fighter Command—in the offensive sense its counter-measures against the enemy's long-range fighters, and in the non-offensive the constant protection of shipping round our coasts.

## WHY NOT INVADE EUROPE ON AN AIR PLAN?

THE OCCUPYING ARMY AND NAVAL FORCES AT "READINESS."

By Air Commodore E. L. Howard-Williams, M.C., p.s.a. (The "Daily Telegraph" Air Correspondent)

I flave just returned from an exceedingly interesting 8,000-mile flight to the Mediterranean battle, where I was privileged to discuss events at length with General Eisenhower and the Air Chiefs. I visited some of the forward squadrons in Italy and saw something of the work of the Airfield Construction Engineers and the R.A.F. Servicing "Commandos." Amid a wealth of detail I have formed a number of impressions which I invite you to consider with me. They refer to impending events of the greatest moment to every one of us.

To begin with, we are indeed fortunate. The winter months remain to us wherein to prepare our plans for the final occupation of Europe, in the light of the portentous

lessons we have recently learned about the conduct of modern war.

At the outset we shall be well advised, I suggest, to face up to a few home truths, in order that we may be in a better position to see where events are leading us.

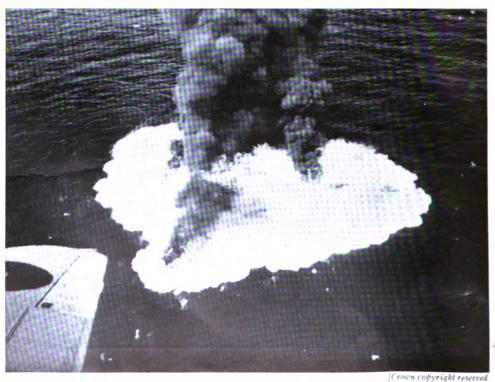
First, I offer the opinion that the Air has already twice won the war in Italy but the occupying forces were not ready. The Germans themselves have admitted this startling fact. The first occasion was when Mussolini fell and they had scarcely a division available to defend the whole of Central and Southern Italy, which the bombing of rail communications and the general chaos had isolated. The second was when Marshal Badoglio signed the Armistice (mark well, five days before it was published).



BROUGHT TO THE SURFACE BY DEPTH CHARGES DROPPED BY TWO SUNDERLANDS, THIS U-BOAT IS SEEN DOWN BY THE STERN WITH SMOKE POURING FROM HER AFT. IT WAS SHORTLY AFTER THIS THAT THE SUBMARINE BLEW UP AND SANK.



A LANCASTER ARRIVING BACK AT ITS BASE FROM A RAID ON GERMANY.



AN INCIDENT IN THE "BATTLE OF THE U-BOATS."

A blazing inferno of oil and petrol where a Ju.88 was brought down in the Bay of Biscay after a running fight with a R.A.F. Coastal Command aircraft on anti-U-boat patrol.

The Germans did not occupy the Rome airports for three days, or two days before the world was told.

The following comment by Mr. Christopher Buckley, the famous War Correspondent of the Daily Telegraph, on 17th November is worth the note: "In this connection there is a significance in remarks made to me lately by a member of the present Italian Government. He pointed out that what had convinced the Italian people that the war could no longer be won was the intensity of our air bombing in the months immediately following El Alamein. It was less the defeat on land, he said, than the feeling of helplessness against attack from the sky that had proved the decisive factor. Italians had ceased to believe in their own victory from that time, and Stalingrad had equally convinced them of the impossibility of an outright German victory in the field."

Surely here is something of the greatest moment staring every one of us in the face. The subsequent landing at Salerno and the present slogging match in Italy are the price which modern war exacts of those who are late off the mark. The Germans got there first. Admittedly they were almost in situ, but forty precious days and nights went by, and later another five.

At the outset it is as well to make it clear that there need be no recrimination on our side. The Prime Minister has explained the circumstances, which were clearly steeped in diplomatic and other negotiations of a highly difficult character. I am not concerned here with these altogether praiseworthy motives but with the most important

martial guidance we are at liberty to draw from the facts.

In a word, our bombing of the war industries and railroads of Northern Italy, Naples and Rome, literally forced the Italians to conform to our will (the object of all war) and knocked Mussolini off his perch. Our Army and Navy and Air Forces were not, however, at a state of readiness to enable us to reap the rich reward we had won; in which you will observe I include the Air Force itself. In other words, we did not have an airborne and seaborne division or two standing by at twenty-four hours' notice, with supporting forces at short call, ready to go in and win.

There are important reasons we must not overlook. One of these was on the seaborne side. We had just invaded Sicily in brilliant fashion and our shipping was busy being reorganized. With due temerity I will suggest another. We have not so far thought of war in that light. We are not yet fully alive to the tremendous poten-

tiality now available to us in the conduct of modern operations.

My only excuse for pointing the fact is that we may give closer study to the possibilities which now offer, that we may learn from this experience during the months

which lie ahead and before we invade Fortress Europe proper.

When a second truth has to be faced: it is that the sequence of Mediterranean victories have been won primarily because of the Air. Thousands of aircraft, in a vast and highly efficient organization, have carpeted the via dolorosa all the way from the waters of the Nile to the gates of Rome. Those great air forces have been used with consummate skill, upon an air plan, to aid the advance of the Army and to open the Mediterranean, so that all three fighting Services can each fulfil their function. Here is the point. Although indirectly these air forces have been playing an

important part in the air war they have not been directly engaged so much in winning the war proper as in winning the battle. A bomb raid on the Ploesti oilfields, one on Sofia, and a few on the aircreft works at Wiener Neustadt, are exceptions which form almost the limit of their contribution to strategic bombing in the grand manner.

Once again there are the best of reasons. Until recently we have not been near enough to our enemy's resources in that theatre to make a purely air offensive

practicable.

A third truth, little realized by our friends, is that by the use of Air we have so far been able to achieve miracles in that, aid to Russia, we have contained literally dozens of German divisions in Italy and the Balkans and France, and have yet kept down our casualties on land despite the tremendous killing power of modern defensive weapons.

From these three truths I suggest there emerge others of the deepest significance. Foremost is that now we have the airfields we want in Italy, need we seek an offensive war on land there? Can my view be advanced that the Air can win wars, as was

proved in admittedly much lesser degree in the days of air control over native tribes? If so, and provided we keep airborne and seaborne divisions at the same state of "availability" and "readiness" as we keep our air forces, we should surely fight our battles in modern fashion.

Was not that the lesson of the German panzer divisions during the heyday of their success in Poland and the Low Countries, France and Russia? They were held very mobile and ready to move on the instant. An extension of the idea to tribious war at least appears worth examination.

Bomber Command and Fighter Command are at almost instant readiness for action all the time. So is the Royal Navy. Is the Army? Or for that matter is

the R.A.F. Transport Command? Are our amphibious or tribious forces?

Suppose Germany collapsed to-morrow morning, how many airborne or seaborne divisions could we put into her terrain to-morrow afternoon?

"Aha," some people will say, "but you cannot move armies about like that." Why on earth not? The Germans have done so repeatedly, from 1939 when they

invaded Poland, to the occupation of the Rome airfields in the autumn of 1043.

It is largely a question of outlook and then of equipment. I must agree that an adequate supply of air transports and landing barges is essential, to begin with. We could perhaps stand down a battleship or two and a few hundred tanks and a few thousand lorries, and reduce our Army by a few thousand men to have the right There is the nuance.

The Germans have had a number of very mobile divisions, many of them airborne. These were their shock troops, those whose job it was to occupy. They operated most on the flat. Because we have a water-jump, however, we need not shirk the race. After all, we can choose our course! I hold the view that Becher's Brook, in the shape of the English Channel, is an obstacle to be surmounted at exactly the same speed as any of the others. When all is said and done, we control the sea communications.

How does this project fit into the problem of the Second Front?

Let us face it, the day our Army is committed to fight in Europe, the Air war qua the Air war will have gone with the wind. Can you see Bomber Command smashing away at distant armament factories when our Army is seeking to advance in the teeth of fifty to a hundred German divisions out to exact the full price for every step? Army would then have a prescribed right to every bomber and fighter we have, to enable them to progress with economy, slow but sure. It would be the Mediterranean all over again.

Agreed that might not matter, but we need to be very careful indeed before we take the plunge. Admittedly, our great Russian Allies are pressing for this, on the grounds that they are winning the land war so far and need help. They, like Germany, are land-locked, and see their problems as did Napoleon, through Continental spectacles. We owe our whole success in war to the fact that we have learned how to employ the two elements of land and sea together, to win our battles for us. As Bacon said: "He that commandeth the Sea is at great liberty. He may take as much or as little of the war as he will.

The introduction of the third element, and with it the third dimension, most surely alters even that situation. I for one say that we should be the first to realize it and the first to reap the rich reward it offers.

Oddly enough, Germany taught us this. We can but admit that the much-vaunted Luftwaffe all but won the world for the Hun. They "knocked off" Czechoslovakia and Austria, like a small boy eating cream buns. They did not even have to fight. The threat was enough. They then plunged into Poland and the Low Countries, and on into France, using the air to give their highly mobile panzer divisions right of way everywhere.

I suggest that this was the exact moment they lost sight of the wood for the Their Generals saw what a tremendous power an Air Force gave their Army. After the Luftwaffe's failure to achieve a decisive result against us in the Battle of Britain in 1940, when we have to admit they came mighty close to success, their great military tradition proved too strong for them. The Reichswehr "got cracking."

Here was their chance. They could not resist the temptation. Instead of concentrating still further on their Air they were properly led up the garden path. Within a few months their generals had plans out for the invasion of Russia and the Caucasus. Much of their potential bomber strength went into Ju. 52 air transports.

That was when they lost the war. They decided to fight it out on a land plan. We have seen the result. Stalingrad was but one of their many tragedies from an air point of view. They lost hundreds upon hundreds of air transports, apart from

a vast array of fighting types.

As an illustration of the way things went I cannot do better than refer to Rommel. His case is typical. Although we will allow he is a good tactician, I for one will never applaud him as a general. He used his Air appallingly. The relationship between him and the Air Officer appointed to advise him was that between master and slave. While we should perhaps give him the G.C.M.G. for training the British Army, he deserves the Order of Merit for handing his Luftwaffe to us on a plate.

Within twelve months in the Mediterranean or Second Air Front alone we destroyed or captured over 10,000 German or Italian aircraft, a truly tremendous con-

tribution to the total war effort. This number is made up as follows:—

Destroyed: German, 4,348; Italian (approximately), 1,800. Captured: German,

2,283; Italian (approximately), 1,600. Total: 10,031.

He had luck and considerable success for a time. Had Rommel been British, however, he would probably have been sacked long ago. His progress reminds me of that of General Nixon in the last war who, with a small but valiant force, strode up the Tigris from Basra to within sight of Baghdad. Unhappily for him he outran his lines of communication. His supply system failed. He had to go back. Yet, had he but known it, he had only to walk on from Ctesiphon to reach his goal. The Turks had already given the order to retire. Nixon missed fame and fortune by a fraction.

When the full story comes to be written, it will be learned how near Rommel was to victory in Egypt, and that it was Air Chief Marshal Sir Arthur Tedder who called his bluff. The R.A.F. was concentrated and blew the enemy's supply system to blazes. That gave us priceless time in which to re-form our defences.

If Rommel's failure to use his Air properly is representative, what is the lesson to be learned from all this? I suggest that we, a nation with a fine naval tradition, need to be on our guard too. We cannot lose the war, in my opinion, as long as we do not hand over our Air to the support of purely land, sea and amphibious operations. We must fight not only our battles but the war on an air plan.

I hold the view that we still need to do some clear thinking on the subject of

the way to conduct ourselves.

To begin with, modern war is tribious, and time and timing are as important as ever. As I see it we require airborne and seaborne divisions held at much the same states of readiness as are our bombers and fighters. We must face up to the proper part played by our bomber offensive. Are we to abandon the job of hitting the herrenfolk where they live, in favour of trying to smash their armies in Occupied Europe by battles of attrition?

I offer three recent pointers, all highly significant:—

1. Goebbels, in Das Reich, quoted by the German News Bulletin on 28th October, wrote: "There remains the air war. To-day it represents the lion's share of our troubles."

2. Nowadays every German leader when he makes a speech, never omits to refer to the terrible effects of the air war on Germany and what they are doing about it.

3. Correspondents from neutral countries are openly saying almost daily that the air war is their main concern. Witness Mr. Noel Panter in the Daily Telegraph of 28th October, quoted the Gazette de Lausanne that the complete disappearance of German confidence and morale is due "less to the unfavourable military developments than to the unceasing Allied air offensive."

We are well aware of this. The fact that they mount two-thirds of their 2,500-odd

fighters to protect Germany is evidence enough.

In conclusion, I offer a constructive suggestion which, I consider, would auto-

matically solve the problem. It is that we should first unify our Air here in England, as in the Mediterranean; placing Bomber Command, the U.S. 8th Army Air Force.

Fighter and Coastal Commands under one supreme Air Commander-in-Chief.

Second, mode Eisenhower, this Air Marshalissimo should also control all home-based operational naval and military units, commanded by their admirals and generals. A sailor in the Far East, a soldier in Africa, why not an airman for Europe? Surely at some time an airman merits consideration for supreme command. For the reasons I have given, where better than in Western Europe?

What would be his plan? I think I can tell you. He would first of all continue the air war to its logical conclusion, using the Fleet Air Arm mostly land-based to help him. The Mediterranean Air Command would co-operate in this. He would ask the Admirals for the ships and beg the generals to get the Army "off its knees" as the troops say, and at a state of instant readiness. He would organize the R.A.F. Air Transport Command to help them become really mobile, and might even increase priorities for the aircraft industry at the expense of others in order to get their machines.

I should perhaps make it quite clear that no-one is to blame for our not having

done this before. It is perhaps a new conception of war.

When we have the Germans completely at our mercy in the air and they are completely disorganized, then will be the time to "pop in the ferrets."

## THE DESERT STORY

(Some account of the operations of an Armoured Unit of a squadron, Royal Air Force Regiment, in establishing the desert landing-ground east of Zribet Hamed.)

I LANDED with enough maps of Algeria to sink a battleship. Several copies of each sheet had been given me on the boat, for no one then knew where we should find ourselves. But the campaign developing as it did, and transport being limited, all maps of the back areas were returned to H.Q. as soon as the squadron had settled down to business at its base, and a request was made—and speedily met—for a set covering Tunisia. It was hoped that we should soon need them, and they have certainly proved extremely useful and may yet prove more so. Nevertheless, incredible to relate, when a sudden operational move of part of the Squadron was ordered, it was to an area for which no maps had been issued, and reliance had to be placed on the Africa Road Map and the Tunis-Sfax "one in a million" map. Excellent though these maps are they cannot be expected to show minor roads, let alone desert tracks, and it was for the edge of the Sahara Desert that we were bound. Consequently a rendezvous had been arranged for us south of the Nementcha Mountains with a Bisley aircraft, whose function was to act as guide over the final thirty miles or so of the journey. There is no officer or man in the armoured-car unit of the squadron who would willingly be guided by an aircraft again; a good map and a pin-point would have been more useful, though not half so interesting and exciting. But that is anticipating the story.

Before dawn one day—15th January to be exact—the armoured unit moved out of camp, duly picked up the small convoy we were to escort, and the journey began—slow-moving three-tonners pulling a "Chance Light" and filled water bowser, and vehicles packed with stores and reserve petrol supplies, led by three armoured cars with another three bringing up the rear. It was broad daylight by the time we had reached Aine Beida, a distance of only fifteen miles, and we had about 130 miles to cover, most of it through unknown country and over very doubtful roads. At Culmene we picked up an A.A. unit and, it being imperative that the armoured unit should reach the desert area ahead of the convoy the flak wagons were left to move with the convoy and provide the necessary protection from hostile aircraft. The armoured cars, thus unimpeded, reached Khenchela in good time. It is a rambling sort of place garrisoned by French troops, and there the good road from Aine Beida peters out into tracks, steadily deteriorating as you pass further into the mountains to the south which form the southern

edge of the high plateau. At Khenchela, having experienced the difficulty of finding the correct route without the aid of a local map, I left one armoured car to pick up the convoy and bring it along the right track—a duty it duly performed—while with the remaining five cars we pushed on as quickly as possible to keep our rendezvous with the aircraft. The track was at first in fairly good shape, but nowhere could it be called a road, and as it led us into the mountains we realized with what truth it had been termed "doubtful" on the Tunis—Sfax map. In places one could distinguish it from the stony rock-strewn ground on either side only by looking well ahead, though occasionally an attenuated series of rather larger stones than those freely sprinkling the surface had been placed as a sort of touch line, in some effort at definition.

The country became increasingly barren as we proceeded, but by the time we had entered the mountains proper at the little Arab village of Barbar there was no longer any chance of missing the way, for you either stayed on the track or fell off it. The mountains at Barbar are grey and bare and the stone houses merge perfectly with the rocks. But in the pale sunlight of that day, and in the otherwise barren landscape, its silver-branched, leafless poplar trees stood out as a rather eerie but beautiful landmark. Through the village and over its rock-paved street rushed a fresh stream, and a mixed flock of sheep, goats and cattle had to give place to let us pass. Courteously saluting the surprised inhabitants with uplifted hand-reminiscent of that delightful gesture of Her Majesty the Queen—we passed through in our five armoured cars, slowly and impressively, and rounded a shoulder of rock, passing out of sight but probably into the local folk-lore. It seemed hardly possible then that the three-tonners of the convoy with the "Chance Light" and the water bowser would ever be able to make it, but we could only send up a periodic invocation and hope they would. Beyond the village, and in many places thereafter, the narrow track skirted a precipitous drop on one side while inconsiderate rocks, projecting from the steep face on the other, did their best to force us just too far over.

Frequently the margin between wheels and the edge of beyond can only have been a matter of inches, and it speaks wonders for the drivers of the lorries that they came through—on that occasion—without a hitch. However, it was not until some hours afterwards that those of us with the armoured cars were sure of this, and during the somewhat hectic hours of the afternoon—while they were slowly creeping over the interminable mountain roads and we were touring about in the desert—there were

times when the chance of their getting through seemed slim indeed.

Those mountains require a more eloquent pen than mine to do them justice ordinary grey barrenness gave place to a wilderness of bare yellow and orange rocks; the hills tumbled about with no apparent rhyme or reason in their contours, and the track had to zig-zag and corkscrew through them, now climbing to round some projecting shoulder, now dropping steeply to end abruptly a couple of feet or so above some dry, boulder-strewn river bed down which you had to feel your way to climb out up an equally steep incline further along. In those river beds one occasionally found a stream and a few green trees, and there the Arabs had done their best to cultivate the land in irregular patches among the rocks. One such fantastically picturesque spot is the village of Djellal, where the stone houses cling precariously, it seems, to the hills from which their stone was hewn, and appear almost to grow into them. The place looked completely deserted as we passed through, but I have no doubt many eyes wonderingly—perhaps fearfully—witnessed our passing. In that yellow waste of rock one would occasionally see a hill of multi-coloured stratification—a curious sight of purples, pinks, yellows and greens. And now we began to glimpse vistas through the tangled masses of rock of the utterly barren land stretching down to the plain far below; and no one could call it inviting. In places the lower slopes of those weird hills looked like nothing so much as great slag heaps—slate-grey slopes of rock and soil that seemed quite incapable of sustaining any plant life. But we had not exhausted the colourful possibilities of that strange region, for, as we descended the still wildly corkscrewing track towards the distant plain, we passed through the Nementcha Mountains—everywhere varying shades of pink unrelieved by any vegetation. As I was later to see when I flew over them, their clear-cut, knife-like ridges are completely denuded of soil, and from the desert they stretch away along the northern horizon, a pink barrier.

We came out of the mountains at last on to a stony waste at their foot—flat,

featureless and arid, except away to the south-west, where we could see the green palms we knew marked the village of Liana. It was on the track to the north of Liana that we were to make contact with our guiding aircraft, and sure enough we had not been at the appointed spot many minutes when out of a clear sky it made its appearance, swooping down, circling round us and then, with the "follow me" sign-dipping port and starboard wings alternately—flew away over Liana towards the south. With some relief we set off at as good a speed as the going would allow along a track which led in the direction of its flight. And then began surely the most extraordinary steeplechase ever armoured cars engaged in. The track led us straight into Liana, a village of houses made from sunbaked mud bricks, with a tortuous street a few inches wider than our cars; indeed, one of the projecting Bren guns swung slightly and tore a jagged groove in the side of a house. Down this street we passed, much to the evident amazement of the inhabitants, who stared at us from the holes which serve them as doorways. It almost seemed that we would get stuck-and there was no turning back-but triumphantly we emerged on the other side and stoutheartedly pursued the aircraft, now a speck in the distance, over a trackless land of fine sandy soil. Soon our guide had disappeared over the horizon, but, having observed the point of its disappearance, we pushed on for mile after mile until we reached another oasis in that featureless plain; the mud-built village of Zribet Hamed. It was a Friday—the Arabs' Sunday—and there was a sort of open-air meeting taking place on the outskirts, with all the inhabitants in their Sunday best, some rather colourfully dressed and mounted on fine horses; but the counter-attraction we presented soon broke up the meeting in our favour. It must have astonished them greatly when we fired a green Very light—a pre-arranged signal—to call up the aircraft, which we considered had now been absent far too long. Nothing happened. We held converse with the Arabs—or rather with the one we discovered who knew some French. The rest admired the points of our armoured cars, and pointed with respect to our guns. No aircraft, and the afternoon was advancing all too rapidly and we had the uneasy knowledge that our petrol would hold out for barely another thirty miles—we had had ample for the distance but low-gear work had increased the rate of consumption. The wisest course seemed to be to make a strategic withdrawal in good order to the plain end of the mountain track, and make a fresh start from there when the convoy with petrol reserves got through. Waving a dignified farewell, therefore, we swung round and passed back through the village, where we found the Arabs kneeling in prayer-whether on our account or on their own we did not know, but rather hoped it was the former. Half way back to Liana—and so much worse off for petrol-we observed our guide once more appearing in the sky. Again the circle round and "follow me" wobble, and then a gradual disapparance in the same direction as before. Thinking the landing-ground could be only a few miles away after all, we once more passed through the astonished village of Zribet Hamed, now all too thoroughly aware of us and wondering what we might do next. They were soon to know. A glance at the appropriate sheet of the 1:200,000 map of Algeria (oh, that we had had one!) shows to the east of Zribet Hamed a series of gullies running north and south. Elsewhere for countless miles the land is almost perfectly flat, and from the air it would appear so even there. Those gullies, dry, narrow and steep, would defect any armoured car, and some of them approached the perfect tank trap. For a while, however, we took them in good style—thinking "this is the last"—but then the pilot of the aircraft, realizing the route by which he was expecting us to reach the chosen landing-ground was an impossible one, to the greatly increased astonishment of the Arabs made a perfect landing between the gullies, decanted the air gunner and took off again. The "Dr. Livingstone, I presume" nature of our meeting needs no description. The pilot much regretted any inconvenience he had caused us, and if we would lend his air gunner our D.R.'s motor bike he would precede us on the way we had come, back to the foot of the mountains, and lead us to the landing-ground by the proper route. Back we went through Zribet Hamed once more and then the cars began to run out of petrol. Having added a good forty miles on to our route by throughly touring the neighbourhood, engaging with amazing success in a sort of desert Grand National into the bargain, they had decided to call it a day.

Leaving three cars behind and taking our air-gunner guide with me I managed to

get back within sight of the road before my own and the second leading car also ran dry. A binocular sweep of the foot of the mountains showed that the convoy was nowhere in sight. There was nothing for it but to have tea and send the gunner, on the D.R.'s bike, to find the convoy and our sixth armoured car—still faithfully shepherding it—in the hope that it had managed to get through all right. He was then to have petrol loaded on the car, send it back to me and guide the convoy safely on to the right track. And to cut the remainder of a long story short, that is what he did. The convoy did get through; with the aid of the D.R. and in the absence of an aircraft guide, it safely reached the spot in the desert selected for the landing-ground; and there, in the first light of the moon the armoured cars rejoined it. Tents up, patrols organized, flak wagons in position, a hot meal. Flare path and beacon lighted, and in the clear desert atmosphere our aircraft taking off on what proved to be the first of many most successful sorties against the enemy round Sfax and Gabes.

The following morning we were astir bright and early, and bright it certainly was in that wonderful desert atmosphere—fresh and exhilarating. After our experiences of the previous day, culminating in the complete success of the enterprise, and a good night's rest, we all felt fine. And the knowledge that we were taking a vital part in something really operational had throughout kept our spirits at a very high level. It had all seemed very much worth while from the outset, and at no time did we really feel other than completely optimistic about its success. Roughly, the Group Captain's idea was this. At that time the weather on the plateau was frequently so bad that flying, especially by night, was out of the question, and vitally necessary operations against the enemy had consequently to be suspended. Even if aircraft did take off, violent wind and rain would prevent their safe return. But in the desert, night-flying conditions—in the moonlit period chosen—were pretty well perfect. Aircraft could take off from their base in the late afternoon, land in time for a late tea (their crews relaxing in the bright warm sunshine), then take off in the evening on their operational There was no difficulty on the return trip, for in the clear air the beacon could be seen for many miles. The following morning, at first light, they were off again and back in their base for breakfast. By day the desert was innocent of aircraft—and when I had dispersed the tentage in a wide irregular circle (our first job that day) they looked so like the fairly numerous Bedouin tents that even in daylight, and flying low, our own aircraft had difficulty in finding the spot. Really the only sure way was to emerge from the mountains through the Oued el Arab gap and then fly on a compass bearing until you passed directly over the place—but even then it was easy to miss it the first time. Actually it was some thirty miles south of the Nementcha Mountains on a perfectly flat plain stretching as far as the eye could see. Except to the north, towards the pink mountain wall, the horizon was an unbroken straight line. A matter of a mile or so away from the camp, off the track made by our vehicles, you could easily be lost without a compass and spend some time in finding the place again. The land was almost completely lacking in vegetation, apart from occasional small patches of the ash-coloured scrub growing no more than six or eight inches in height. Even if the enemy had spotted that landing-ground, bombing would have been futile, for little damage could be done to the dispersed camp and vehicles, and by day there were no aircraft on it; and as for the landing-ground itself, well we would simply have moved a mile or so away—there was not the slightest possibility of making it U/S.

It was there that I saw my first mirage. Sitting in the "doorway" of my tent one lunch-time I saw, not more than three hundred yards away, a lovely rippling lake with little islands near its edge. Cool and inviting in that arid waste, it seemed that by walking just beyond the limit of our tents one could bathe in its fresh waters.

The Arabs kept well clear of our camp, but occasionally one of the armoured cars had politely but firmly to shepherd them off the landing-ground—across which they were apt to wander with their camel trains, swaying steadily off towards the southern horizon. Often, too, curiosity would be too strong and, leaving the laden camels to continue their journey alone—spurred on by thoughts of rest, food and water—the men and women would linger behind to stare at us. In that region the women seem to have a far greater measure of freedom than on the plateau, where, on the rare occasions when they emerge from the houses, they trudge behind their men, their

heads completely enveloped in a thick veil. In the desert they go barefaced and unashamed, but are free to act as beasts of burden too, for on one occasion when a recalcitrant camel stopped, kneeled down and would not budge for all the beating the men could give it, they simply transferred its load to the back of one of the women who moved off with it, the camel contentedly following.

What is there more to say in the first chapter of our desert story? After a couple of days down there, all being quiet and well under control, I flew back over the mountains to Squadron H.Q., leaving one of my officers in charge of the unit. We had found that when the air crews returned from their sorties they had to put up with tea and biscuits, but by utilizing some men of the squadron as extra cooks—providing also that adequate rations were made available—we considered we could cook for all personnel down there. To this the Group Captain agreed, and with the aid of the shuttle-service of my squadron vehicles, started on my return and maintained as a regular thing thereafter, this arrangement was put into force and proved most satisfactory to all concerned.

The desert experiment, as it was at first, proved highly satisfactory, and the aircraft operating from the landing-ground did a great deal of damage to road and rail communications, transport and installations in the Sfax—Gabes area.

Only a footnote remains. On the day of our arrival, when we must have shaken up the inhabitants of the neighbouring villages pretty thoroughly and made them very well aware of our defensive armour, the "guiding" aircraft made a second forced landing. Realizing that one troop of armoured cars was stuck for petrol, the pilot miraculously landed between the gullies on a piece of land about as big as a good-sized pocket-handkerchief and "jettisoned" enough aviation spirit from his tanks to enable them to get back to the road and catch up with the landing cars. This had to be diluted with ordinary M.T. spirit as soon as supplies arrived, for I am assured that the three "recce" cars nearly took off in formation when their engines started up again. We found the crews enjoying an excellent meal of bacon and eggs—the latter thoughtfully provided by the local inhabitants.

On that day we proved the excellent rough ground performance of our reconnaissance cars beyond all possibility of doubt. But we also proved what we already knew—the great importance of maps—and what we did not know, but shrewdly suspected, the inadvisability of relying on a purely air reconnaissance of the ground and joining with armoured cars in an air steeplechase. Still, there are occasions when time presses and it is necessary to take a chance, and it is happily true that all's well that ends well. For the desert story is one of success-success against the enemy, which must have materially helped towards his imminent expulsion from North Africa. And in

that success all ranks of this squadron are proud to have played some part.

## FORT LAMY MENU

By Flight Lieutenant John Lawson-Ward.

A FEW months ago I was privileged to spend a few days at Fort Lamy, in the Lake Chad territories of Central Africa, as a guest of the Fighting French garrison. That extraordinary and successful desert expedition, which was planned to drive northwards from Lake Chad through the Libyan Fezzan, and to strike at Rommel's right flank. was then in preparation, and I was enabled to see the characteristic way in which the French were attacking the "food problem." When one considers the very desolate nature of the Saharan wastes, which stretch for a distance of over 1,500 miles between the Mediterranean and Lake Chad, it becomes clear that the successful feeding of a military expedition of any size travelling over vast, untracked, sandy wastes was a major factor contributing to its success.



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INSTRUMENT WORKERS TESTING THE CAMERAS BEFORE INSTALLING THEM IN A MOSQUITO P.R. AIRCRAFT.

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A TYPHOON.

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It is difficult, perhaps, in cold print, to convey to the reader any adequate idea of the grim charm of the Fort. Readers of the works of Major P. C. Wren will be familiar with descriptions of massive, white-walled forts rising sheer out of rolling sand dunes, but actually Fort Lamy is a fair-sized town, which has grown up round a small fort, built soon after 1902 on the site of Commandant Lamy's victorious engagement with the Touareg Arabs, which finally consolidated the precarious conquests of the Third Republic in Central Africa.

The Fort stands on the Chari river, about 75 miles above the point where the river flows into Lake Chad, and is practically in the centre of the African continent. To the north lies the Sahara, to the south thousands of miles of impenetrable jungle, and for half the year Fort Lamy is cut off from civilization—except by air—by the Chari river

in flood.

Lake Chad itself is a salt-water morass, most difficult to navigate and familiar only to a few native fisherfolk.

After sixteen months' residence in British West Africa it was a revelation to taste real French cookery, to drink authentic "vin ordinaire" and to experience for the first time since 1939 the traditional French artistry which can transform the scanty material available to the white man in Central Africa into a palatable and attractive meal.

#### II.

My aircraft decanted me on to the lonely runway at the Fort one sizzling afternoon in September. The temperature in the shade stood at 110°, though I afterwards realized that the really hot season had passed.

It was a relief to climb into an ancient Chevrolet van, of 1911 vintage, and to be whisked away by a black driver to the comparatively cool shelter of the "Grand Hotel." This, like most European buildings in the town, was a white Moorish structure built in the form of a hollow square, faintly reminiscent of a Georgian coaching inn, with a large central patio and a galleried first story and cool, arcaded passages. Here I was greeted by "Edward," a Gold Coast native, an English-speaking negro, intensely proud of his British citizenship. I was ushered into the "restaurant" and coffee and rolls were placed before me. It is impossible to convey the sense of well-being that was induced by a bowl of French coffee, redolent of chicory, served in an outsized breakfast cup, with the familiar dessert spoon and large lumps of soft, white sugar. There was the long roll of crisp bread, a pat of butter—real butter—so familiar and yet so unexpected. A half-naked figure stole up behind me and brought a couple of "pistolets"—ordinary fresh rolls cut lengthwise and lined with butter, mustard and a small slice of sausage meat. The rolls were newly baked and still hot.

The European quarter at Fort Lamy consists of a long double row of tropical bungalows lying on the bank of the Chari river and sheltered from the tropic sun by palms and luxuriant tropical foliage. The bungalows are built of stone or brick, well limed and thatched, the structure being raised above ground level and surrounded by a compound fenced with a thick prickly zareba or hedge. At one end of the compound is the kitchen, a stone den, dark and smoky, presided over by a black cook.

It should be explained that unlike the British or any other European colonizing race in Africa, the French have always been at pains to preserve the traditions of their cookery in all their Colonial possessions, and the natural aptitude of the African native towards cookery is made the object of a long and thorough period of training.

No native servant in Africa is as valuable as a Senegalese cook, trained in Dakar, Conakry, or Brazzaville. There he is taught French cookery, and once he has graduated he becomes the most treasured asset of any mess or household. When an official, or "Resident," is known to be leaving for France at the completion of his overseas time, the most complicated and subterranean plots are hatched with the object of either bribing the cook to come over to a new household or persuading his master to hand him over for a substantial consideration to the highest bidder. This may sound an exaggeration, but the salient fact is that in tropical Central Africa the one factor that matters always, after provision of shelter and physical safety, is food. The whole wealth of normal sensual appetites and experience are denied to the average European;

permanent celibacy is nearly always obligatory, social life is usually non-existent, good liquor is rare and drunk always with a guilty sense of depleting irreplaceable stocks, and, above all, the sense of mental isolation—no newspapers, magazines, books, telephone calls, letters or daily contact with the civilized world beyond the unsatisfactory radio—promotes a crescendo of boredom which is expressed by the French word "Cafard."

#### III.

On the evening of my arrival I was invited to dine with Commandant D——, a member of the Fort High Command, and lately returned from Bir Hakeim: he was my host during my stay. I was taken along to the house by the only other British officer then in the district (who was our resident Liaison Officer in the town and was persona grata to everyone at the Fort—no mean achievement).

The Commandant's house was large and old, and as we walked across the dusty town "Grève"—a large acre-size, sandy square—brilliant lights were already shining out from the loosely-drawn shutters and a hum of sociable talk could be heard. Already

clouds of insects were swarming outside the veranda in the twilight.

The meal that was afterwards served was typical of the care and good taste displayed by my French hosts throughout my whole stay. Generally speaking le diner is the chief meal of the day, taken when all mental and physical effort is over and guests can gather over the preliminary and prolonged apéritif. It is true that the eight o'clock petit déjeuner (rolls and coffee) and the déjeuner at noon, were all models of perfected art in their way, but nevertheless it is on le dîner that most of the cook's art and the consumer's appreciation were lavished.

Twenty people or so were guests to-night. We drank our "Dubonnet," "Claquesin" and "Pernod" sitting round a low table, our host surrounded by large thermos flasks of crushed ice. No European house is complete without its refrigerator, and where electricity is not available kerosene is employed. A small generator in the

Commandant's house provided us with brilliant electric lights.

A number of Frenchwomen were present, wives of some of the officers, who had chosen to remain in this outpost rather than leave their husbands and retire to the De Gaullist capital of Brazzaville down on the West Coast of Africa, where life can be as pleasant as at any town in the tropics. They were all well-groomed, faultlessly dressed in light silk evening frocks, but pale and with that waxy transparency of complexion that betokens long residence in the humid equatorial African zones.

There were also some children present, aged between twelve and fourteen, with grave demeanour and exquisite manners; they were given "sirops" to drink, mixed with soda water (bottled by the local Syrian merchant); one little girl could not drink

enough "Grenadine."

As the conversation hummed the "punkas" overhead creaked unceasingly. They were pulled by little native boys; some could hardly have been more than four or five years of age. They pulled energetically for a few minutes, then tired, to be awakened to renewed energy by curses from the guests. Then another urchin would step in as

relief and once again the air would become tolerable.

Incidentally I was told by a middle-aged "Capitaine"—a veteran of Narvik who had lately returned from Bir Hakeim, where he had served under General Koenig—that the old-fashioned punka is much to be preferred to the new-fangled electric ceiling fan which revolves horizontally and is said to drive the hot air down from the ceiling on to the food placed underneath at mealtimes. Not only is any hot dish prematurely cooled but, what is more sinister, is that any infection or dust-carried germs are driven on to the food and dysentery can be traced to this factor. The punka on the other hand moves as a large rigid flap, hinged at the ceiling, and its to-and-fro movements create horizontal currents of air in the lower surfaces of the room, and dust is not driven on to the food.

We drank for nearly two hours, the Commandant dispensing the drinks, periodically putting his fists into the thermos flasks and distributing chipped ice into all the glasses. Only my friend and I drank whisky—there was some Congo Beer—Belgian beer, brewed at the great colonial brewery at Leopoldville, which seems mild, like lager, but has a

distinct delayed action: but nearly everybody drank Dubonnet and Vermouth and French Bitters, of which there seemed to be no dearth. For one lady my host produced some Portuguese beer in a wonderfully ornate pink bottle. This beer, I believe, is shipped from Portugal to the lonely Cape Verde Islands (off the coast of British Gambia) where now a widespread famine is raging, and for the past two years the Caboverdeans have exported it extensively to the British West African colonies in exchange for foodstuffs. It has a slightly acid taste, no suggestion of hops in its flavour and the after effects of over-indulgence include thorough gastric derangement. As a beer it is a very fair substitute for the English bottled beers which are so rarely seen in Africa.

At nine o'clock, after nearly two hours of Dubonnet and most stimulating conversation, the head boy approached Commandant D— and, saying nothing, bowed profoundly. Apparently dinner was served; there was a general move towards the dinner table. This was in one of the three main lofty rooms which formed the main structure of the house, and to my amazement appeared to be hung in cream satin. The whole building was of bold native brickwork covered with a lime stucco, and I am now sorry that after the meal I did not examine the wall coverings.

From the ceiling hung an immense punka, likewise covered in pleated satin. The whole effect was sumptuous and startling when one considered that for hundreds of miles around there was nothing but wilderness, and this décor would not have disgraced a town house in Paris. No doubt behind the fabric of the wall hangings, if one disturbed them, were lizards, bats and insects; possibly snakes. An old "First Empire" type of chandelier, adapted for small electric bulbs, hung from the ceiling. The amount and quality of light for a dinner party of twenty could not have been improved.

## IV.

The meal that followed, I afterwards discovered, was nothing out of the usual nightly routine. Hors-d'œuvre consisting of olives, slices of pimento, guava shreds and a sort of thirst-making "escargot" or sea-snail, presumably from Lake Chad, hard-boiled eggs and Russian salad were on little plates beside each plate. We sat down without ceremony, each officer beside the lady then current in his affections, her company and conversation was in some cases shared between two and three admirers. (Husbands were unrecognizably mingled with the rest of the menfolk.)

My host was full of stories of General Koenig. Apparently three times, at Bir Hakeim, Rommel's Brigade-General had sent proposals for surrender, the last type-written on a piece of toilet paper. On each occasion the gallant general had replied with the most appropriate monosyllabic rejoinder. The dive-bombing had been terrific, almost beyond endurance. The tenacity of the garrison had enabled the British in the centre to re-form and this salient, thus successfully held, was an important factor in our ability to regroup later so solidly at El Alamein.

After hors d'œuvre came the soup—ground-nut, a thick broth-like smooth cousommé, to me always delicious, and when made by a native cook, particularly so; it is to be found nearly all over Africa where the humble ground-nut (peanut to us) is grown. I believe Hatchett's restaurant, in Piccadilly, is the only place in London, in peacetime, where one can find it, and consequently this restaurant is a rendezvous for all "old coasters." I left Africa without the recipe, and hanker for it still. It is eaten with thin French toast or with diced cubes of fried bread, and the longer you are in Africa the more pepper you take with it.

I would have liked more of the soup, but it is very filling and there were more courses to follow. Whitebait were now served à l'anglaise, with slices of bread and butter; some of the officers preferred them with a thin vinegar sauce, rather like Worcester, but mixed with oil and with a suggestion of garlic. I was surprised to see whitebait, and was told that they flourish in the salt waters of Lake Chad; they were somewhat bigger and less tasteful than our home variety. A salad of some unrecognizable green stuff, resembling endive, was served, with a plain oil and vinegar dressing, but with a subtle background of "tartare" flavour. I do not usually care for whitebait, but the salad transformed it into an attractive dish.

V.

After the fish the main dish was served, some sort of beef, probably local "bushcow," braised and done up with a garnish and thick gravy sauce; unlike most meat in Africa it had not been killed the same morning, but as the Commandant had an ice-box, it had been "kept" for forty-eight hours and so was palatable. On side dishes we were served with a salad—thick cos lettuce and a strange type of cress, sliced onion done up with olive oil and a beautifully smooth, rich salad dressing. The vegetables handed round were large inch-thick cubed potatoes, fried in oil and bread-crumbs, producing an attractive crisp golden-brown jacket; papaya (or paw-paw), which is a sort of local melon or marrow, eaten cold, as a sweet with sliced lime, or stewed as a vegetable with meat. I do not like it any more than I like our own English marrow, and did not take it. Nor did I take the spinach, which appeared most attractive, creamed and stalkless, as I distrust African "greens," which are apt to be grown too near native haunts.

It took nearly an hour to pass through these four courses, the vitality and liveliness of the conversation increasing apace. My friend Captain A—, the Liaison Officer, could talk idiomatic French, but, unfortunately, though I can speak passable French I am slow at understanding it, and a great deal of the point and double-entendre of the conversation, which was both cultured, scandalous and political in turn, was lost on me.

For drinks we had red wine, vin ordinaire, authentic and distinguishable from the usual "red infuriator," which one can purchase so cheaply in French African Colonies. Colonel L—told me it was flown up in demijohns from Brazzaville in the tail of the machine that had lately brought General Leclerq to Fort Lamy from Brazzaville. The plane was an old communications "kite" and flew nose-heavy—by packing in several hundred litres of red wine near the tail spaces an even keel was achieved and no operational considerations sacrificed. "Malheureusement," said one woman who knew the pilot, "as the flight proceeded the stabilizing effect was lost, but the morale of the pilot improved." Anyhow, the communications flight from Brazzaville to Fort Lamy at this season was hazardous and irregular in the extreme, the route passing from one tropical storm area to another, and the journey, as I know from personal experience, is so terrifying that I have never ceased to admire the intrepidity of French Colonial pilots.

White Bordeaux was there from existing stocks surviving from 1939, when the last contingent of new officers arrived from Metropolitan France. Most of them brought wine with them; other supplies had been flown down from Morocco by that wonderful trans-Saharan Air Service, Régie Air Afrique, right up to July, 1940, when the "metropolitan" French Colonial Empire of North West Africa adhered to Vichy and the French in Equatorial Africa rallied to de Gaulle. A bottle of Graves was there, some small bottles of Sauternes and more and more Congo beer.

The main meal had now finished and there was a pause whilst the cooks wrestled with the sweet. For some reason the European idea of sweets at the end of a meal baffles the best native cook, as he is quite mentally and physically exhausted by the production of the main courses and his intelligence does not enable him to start cooking the sweet until he has disposed of the meat. Accordingly we sat and drank until the jam pancakes appeared—light and thin, no stinting of egg in their preparation, crisply cooked and served with a hot jam purée—probably it was South African jam, but it was sweet and hot; sliced limes and thick cream were handed round. Several of the ladies did not indulge; the men wolfed the sweet voraciously.

## VI

The meal was now over and French coffee and Cognac and Van der Hum appeared: we had been smoking cigarettes earlier (packets of "caporal ordinaire"—reminiscent of "gauloises bleues"), but now "Lagos Cigars" were handed round, which are sold at a penny each or less, and in my opinion equal a fair Panatella; it is a pity they are not more exported; they are certainly a major factor in making African tropical life bearable.

Even untranslated into "restaurant French," this meal, in no way unusual or studied,

prepared and eaten in the most inaccessible and savage territory of Colonial Africa, would not have disgraced a dining room in any capital of Europe. Thus then:—

Apéritifs.—Dubonnet, Pernod, Claquesin, Sirops.

Hors-d'œuvre.—Olives, pimento, guava, Russian salad, escargots.

Soup.—Ground-nut consommé.

Fish.—Whitebait; bread and butter, endive salad and sauce tartare.

Meat.—Braised beef.

Vegetables.—Diced potatoes, papaya, creamed spinach, green salad.

Sweet.—Jam pancakes with cream and sliced lime.

Coffee and Liqueurs.—Van der Hum, Cognac.

Wines.—Vin ordinaire, white wine, Bordeaux, Sauternes, Congo beer, Portuguese beer.

The party now tended to break up into twos and threes. The children and their mothers departed. Some of the officers wanted to talk shop with our host. "Shop" was the topic of the projected Fezzan campaign which General Leclerq was shortly to lead. Colonel L— was to lead a unit and "Méharistes" and mechanized forces were to co-operate. As I listened I thought how impracticable the whole scheme was. I couldn't believe any mixed force, even accompanied by aircraft, could penetrate the desert northwards from Lake Chad across the Fezzan wastes, even if they could avoid the Tibesti mountain range, where some peaks exceed in height all but the highest Alpine ranges. I little knew how exacting and meticulous were the preliminary preparations then in train.

I afterwards saw some of the "Méharistes" or Camel Corps units and admired the careful and thorough way that they had been equipped—for they would have to keep pace with armoured forces. Much thought had been given to the proper carriage of appetizing but not bulky rations, and in a desert where water is hardly to be found, even a modicum of vin ordinaire was planned to be carried. The equipping and rationing of this expedition was a triumph; one miscalculation of ration strength or in map reading could have "ditched" the whole expedition. Throughout all my stay, overhead was the constant over-flying of aircraft, bound for the Middle East, the trumpeting of buglers and the dusty marching, counter-marching and drilling of native infantry. It was all an exhilarating and inspiring scene.

It was all an exhilarating and inspiring scene.

In a few weeks, with careful timing, the expedition started, and it is common knowledge now how Axis stronghold after stronghold fell until, rumbling along old Carthaginian caravan routes and travelling over miles of desert, General Leclerq's Fighting French columns made a triumphant rendezvous with our Eighth Army in

Tripolitania.

## INDIAN NOTE BOOK

#### XXIV.

Soon after I had burst like a silent thunderclap on the Indian scene I decided to go through the motions of learning the language. I felt I ought to set an example. I have never had much enthusiasm or aptitude for acquiring foreign tongues, and tentative efforts to talk French to French people in France have made me shy and diffident about attempting their use. The French rather unkindly assess the intelligence of foreign visitors by their ability to speak French, and they have never troubled to conceal their opinion that I am a congenital idiot with a mental age of about two. In return, I am satisfied that as a nation the French understand their own language imperfectly and speak it thoroughly badly: they speak it much too quickly and their pronunciation leaves a great deal to be desired. When Mr. Churchill speaks French I can follow him quite well, which surely supports my view. It is a pity the French do not take pains to model their diction on his. But you cannot make them see this.

There are, I believe, three hundred different languages spoken throughout the length and breadth of India, and after I had been there some little time this number was

increased to three hundred and one. Indians are a kindlier and more tolerant people than the French and enter with pleasure into the game of trying to understand what you are trying to say to them in (more or less) their own language. When they succeed, as they sometimes do—for they are amazingly good at it—they are as elated as if they had found five rupees. On the occasions when they fail they are deeply chagrined and attribute the fault to their own obtuseness rather than to the wild ineptitude of the would-be linguist. I used to embark upon this sort of conversation in the spirit of a comic charade and the results, if sometimes surprising, were always good entertainment.

The language one sets about learning in Northern India is Urdu. In origin this was, I believe, the speech of camp and army in the days of the Moghul invaders (correct me if I am wrong) and is an admixture of classical Persian, Arabic, and a third language which for the moment I forget. It is now the official language of the Indian Army and something of a lingua franca over a large part of India, as English is among the educated classes. It is not a difficult language and its elements can be learnt without extreme mental exertion by anyone who sets his mind to it. My own failure was due to the fact that I never really tried. The little I did learn I picked up casually in bars and on my travels, and not as a result of my expensive studies.

The first step towards learning Urdu is to engage the services of a munshi. Munshis are official language teachers, and normally every Army regiment and R.A.F. station bore one on its strength. They are not very heavily paid and look to supplement their incomes by giving private lessons to British officers who have language examinations to pass. As a class they vary in professional efficiency. Some are men of education and culture; others fall short of this standard at a variety of levels.

The munshi who undertook, at the standard rate of a rupee an hour, the formidable task of teaching me Urdu was a Mr. F——. He was a competent and conscientious instructor, and if he failed in his attempt the fault was wholly mine. At school I had a high reputation for efficiency in the art of diverting the classics master gently and adroitly away from the tedious business of the hour into harmless by-ways unrelated to the previous night's prep, and instinctively I began to practise these discreditable

wiles on my defenceless munshi. The poor old chap never had a chance.

Nevertheless, I learned a great deal about India from my munshi. I should like to describe him, for he was a quaint gentle character, singularly defenceless in a harsh unsympathetic world. He was a devout Mohammedan, an intelligent man and a language scholar of distinction. But he felt himself to be a failure. For some technical reason which I now forget, and which he lacked the ingenuity or influence to overcome, he had been unable to obtain the coveted degree of B.A., which would have opened the way to academic (and lucrative) appointments such as he observed to be held by men far inferior to himself in learning. So he had remained condemned to the relatively lowly drudgery of teaching elementary colloquial Urdu to young officers and the occasional mem sahib who thought she would pass the long idle days by "learning the language." He was already getting on for sixty, and when I left India was still striving to overcome the complicated obstacles, whatever they were, which had barred him from a University degree. To me he seemed often a forlorn, pathetic figure, for I could not but suspect that the fault, dear Brutus, was not altogether in his stars, but partly in himself, that had caused him to remain an underling. There was, one felt, a weakness, a strain of ineffectuality in his character which made him a predestined also-ran in the fierce competition for place and advancement with which Indians of his class have to contend. Without influential relations or friends, and lacking the toughness of character necessary to push himself forward, he had been brushed aside by less gifted but more ambitious men who pursued without consideration or scruple the traditional path of self-advancement by the traditional means.

Mr. F— was a frail, slight figure, so thin that he looked half-starved (as I suspect he was), with hollow cheeks and nothing but skin stretched over his narrow face and skull. He used to wear a crumpled, badly fitting cotton suit, no collar, and a pair of worn gym shoes rather too small for him. He rode to his appointments on a ramshackle bicycle which one day somebody pinched, and all sorts of troublesome formalities ensued with the police before, surprisingly, he got it back again (minor

misfortunes of that kind were always happening to him). If you had snapped or barked at him he would have jumped with fright, and as he went about the cantonment he

looked as though he was always expecting this to happen.

In our official relationships—for he had sometimes to come and see me in connection with his unit duties—his manners were respectful, even reverential, to a degree that was embarrassing. He would enter my office with a low obeisance of the head, his face covered, prayer-fashion, by his thin hands. He frequently addressed me as his lord, once indeed as his lord of lords (by which he meant to indicate that not only was I his local superior officer, but also the chief arbiter and supreme burra sahib of the destinies of all R.A.F. munshis). If my clerks happened to be out he would await patiently their return, not presuming to intrude himself unannounced.

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Nevertheless, he had a certain dignity of mind and demeanour. He was inwardly humble rather than outwardly servile. There was nothing vulgar or hypocritical in his way of address, which derived more from an old-fashioned professional courtesy than from an impulse to boot-lick or curry favour. His life and behaviour were in the tradition of the learned doctors of Islam. Though one encountered surprising gaps in his knowledge and understanding of the world, he was an intelligent man with critical insight into many aspects of Indian life. His interests were, one might say, moral rather than political, and this made him an admirer of the British, whose sense of personal and public integrity he contrasted with, as he saw it, the corruption and selfishness in many grades of Indian society. "For centuries," he would exclaim with earnest conviction in defence of his fellow-countrymen, "long before the British came, we poorer people have been a race of slaves and we have developed a slave mentality. We have learned to use the weapons of the slave—dishonesty, deceit, corruption and cowardice. We fawn on those above us and prey insolently on those weaker than ourselves. We value power and authority only as a means to oppress our weaker brethren." His chief criticism of the British in India was that they were often unsuspicious of and therefore blind to the petty oppressions exercised by their minor subordinates, from which so many of the poorer Indians suffered.

Not for a moment would I have these opinions of Mr. F— taken at their face value. Any such generalizations must always represent an at least partially false and unequal picture. They took their colour, no doubt, from Mr. F—'s own private disappointments and humiliations, to which his character made him abnormally susceptible. There are other sides of a many-sided canvas. (Can a canvas have more than two sides? Who cares?) But they had no doubt their element of truth: in India as a whole there exists an insufficient sense of public spirit, for which it is futile to ascribe blame. It is the lingering heritage of a thousand years and more of personal rule and a long history of communal cleavage. It has its place as one of the factors in what more earnest and better informed writers call the Indian problem, and I would suggest that the fact that it is becoming apparent to thoughtful and insignificant little

persons like Mr. F- is an encouraging sign.

I apologize for this excursion into a less broadly comic corner of the Indian scene. I hope I have not bored you with the company of poor Mr. F—. He was a most likeable old fellow-creature, scholar and poor gentleman—honest, sincere, Godfearing. If his life-long attempts to add the letters B.A. to his name have still proved unsuccessful and he is still to be seen pedalling round the dusty roads with his spoke-sprung bike and his burst gym shoes, at least I wish him good luck in keeping clear of sneak-thieves and punctures.

#### XXV.

Much has been written about the Indian bearer or personal servant, most of it no doubt true. There are good bearers and bad. There are honest and less honest bearers. There are scrupulously clean and unscrupulously dirty bearers. There are intelligent bearers and others who can only be described as dumb clucks. In short, I am endeavouring to suggest that they vary a good deal. As a general statement I would hazard the observation that in India you get the bearer you deserve.

One thing all bearers have in common is a sheaf of chits written or purporting to have been written by previous employers whose grief at relinquishing their services

is equalled only by the enthusiasm with which they extol their admirable virtues. There is a pretty brisk trade in these chits, I am told, in the bazaars. It is said that one innocent old rascal haunted the landing pier at Bombay proudly presenting a chitty which read: "——— was my bearer for three months. His qualities are such that I can unhesitatingly recommend him as a servant who deserves to be given a wide berth." But that may be just a yarn.

The faithful old bearer who writes letters to his beloved sahib when the latter has returned to England, couched in terms of simple and sometimes rather comical loyalty and affection, is well known. Hundreds of such letters must be delivered to addresses at Cheltenham, Tunbridge Wells and Leamington Spa every year. They give a great deal of harmless pleasure to their recipients, who are touched and gratified (and sometimes perhaps slightly surprised) to find that they have inspired such lasting devotion in their faithful old servant Mohamed Ali (who, if truth must be told, they had for many years suspected of pinching their best silk socks). They reply in simple, soldierly terms, and enclose a postal order. Such letters are shown to their friends in retirement when they meet at tiffin or for a sundowner, and one reminiscence leads to another.

Not that I want to make fun of the faithful old bearer. He is a genuine character, and deserves all the postal orders he gets.

#### XXVI.

When I first went out I took over my predecessor's bearer. Some people think that is a mistake, but apart from the fact that any deviation in your habits from those of his previous master are likely to be regarded with disapproval I do not think there is anything in it. Similarly, many old hands would never employ a bearer who speaks English: they regard this accomplishment as a sign of untrustworthiness and a disposition towards Smart Alickry. But I fancy that this is a hangover from former days and has little substance in it now.

This relict of my predecessor was a conscientious and experienced old man, but he was really getting a bit past the job. He was proud of having once served tea to Lord Kitchener. I was surprised to learn that this stern soldier ever unbent to drink tea, but I later found that almost every bearer who was old enough (and a fair number who palpably were not) had had the same distinction. One must assume that K. of K., whilst absorbed in his tasks of reforming the Indian Army and crossing swords with the redoubtable Viceroy, Lord Curzon, fortified himself hourly with cups of tea consumed throughout the length and breadth of India. When one thinks of it, he had what I suppose might be called a typical tea-drinker's moustache.

After only a few weeks in my service this venerable old man (I am speaking again of my bearer) caught a chill when attending early Mass—he was a Madrassy Christian—and this turned to pneumonia. While he was ill his place was taken by one of his large family of sons. One morning, a few minutes after bringing my early cup of tea (chota hazri to you, old cock—all right, all right!) this youth burst into my room and told me, with floods of tears, that his father had that moment died. I mention this incident for the reason that when, not more than ten minutes later, I left my room to walk across for breakfast I found a long line of prospective bearers lined up on the veranda, chits at the ready, eagerly offering themselves for the vacant job. Indians are remarkably quick off the mark on occasions of this kind. Although I explained that I was not proposing to engage a successor at least until I had had my breakfast, they pursued me across the compound, waving their testimonials and proclaiming their exceptional merits in a confused chorus like a pack of hounds in full cry.

My next bearer (not one of the veranda opportunists), a quiet, efficient, respectable little man, looked after me like the competent well-trained servant he was during the remainder of my stay in India. He was honest, reliable, conscientious and proud of his profession. His father had been a bearer before him and had, he told me, been killed by a lion (probably a leopard) on a hunting trip with his master. It had leapt down upon him from a tree. One of his treasured possessions was a little eating-bowl which had belonged to his father, and once when we were visiting Delhi this was

stolen by another rascally bearer who had palled up with him on the train. J—was heartbroken and searched for the thief all over the capital, but without success. He looked a very sad little man for several days. As a boy he had gone with his sahib to Somaliland and Aden, and regarded himself as a much-travelled man.

His wife had been—was indeed again prepared to be, if only I could have furnished the necessary infant—an ayah, and they had a large and perpetually increasing family of small jolly children. The boys old enough to stand, neatly dressed in brightly coloured jerseys and shorts, were always paraded on my veranda when I was going off on tour and greeted me with a smartly synchronized salute. The youngest, a fat little blighter aged about three, usually spoilt the military effect by going off into a fit of giggles, in spite of the shocked nudges of the eldest, aged eight, who was old enough to understand the importance of the occasion. Indians are devoted to small children and usually spoil them; particularly sons.

One year J.—— took his wife and a wide selection of offspring with him to Simla. To his disgust, however, he found that the only living quarters he could get were infested by a particularly ferocious species of oriental bugs which issued, licking their lips, from cracks and crannies every night and made things very uncomfortable. They were, he told me, reduced to burning candles all night, as men light a fire in the jungle to scare away larger but not fiercer beasts of prey. This made the bugs blink and back

uneasily into the shadows, stamping their feet in a baffled sort of way.

Once J— asked me to write a letter for him, and having done so I offered him a stamp. This he declined, however. He explained that Indians in his class of life did not put stamps on letters of any importance. This was because of their belief that postmen, rather than go out of their way to deliver a letter at a humble address, would tear it up and throw it away. But if it was not stamped they jolly well had

to deliver it in order to collect the surcharge.

I used to pay J— thirty-five chips a month, which was in those days five rupees more than the normal wage. As a general rule it is a mistake to overpay your servants. They take it as evidence that you are a fool and behave accordingly. If you give the Simla rickshaw coolies the exact fare of a few annas they will salute gratefully and respectfully and trot away in perfect contentment. But if in a burst of generosity you pay them double they immediately and of one accord set up a howl and crowd round demanding more. Their train of thought is: "This man is a greenhorn or a simpleton; he is the answer to a rickshaw-wallah's prayer; let us touch him good and proper." But in my opinion an extra five chips a month (less than a couple of seats at the "flicks") for a really good bearer is money which could not be better spent. It pays dividends. However, do not suppose that I am offering advice. To any about to visit India I would say that the amount of pure nonsense that one can be told about the country by those who have been there and know it better than the palms of their hands is already in excess supply.

I was only once really angry with J——, and that was when he carelessly sent my dinner jacket to be pressed with my wallet in the pocket. It held a fair sum of money as well as other odds and ends which it would have been most tiresome to lose. I did rather let fly, and J ...., turning a horrible green colour, fled from the room, seized the first bicycle that came to hand and pedalled madly off along the road to the city. He must have covered the four miles or so there and back at a pace which would have won him first prize and accolade of honour in any continental cycle race, for he was back in what seemed about five minutes, shaking at the knees, speechless and sweating, but with the wallet, intact, clutched in his hand. He had had the fright of his harmless life, and afterwards I understood why. He had not been with me very long, and he supposed that if the pocket-book were lost I should go to the police. The durzi to whom he had taken my jacket would of course have sworn that it was not in the pocket when he received it, and suspicion would have lain equally between them. - had terrifying visions of being subjected to a tough grilling and possibly being clapped into jug. I should not, of course, have allowed this, for quite apart from the question of honesty he was much too intelligent and timid a man to have perpetrated so obvious a theft, but this he could not know. As he handed me back my case he looked like one reprieved unexpectedly and at the last moment from the electric chair.

I have never, wittingly or otherwise, so badly scared a fellow-creature or prompted

anyone to such a frienzy of physical exertion.

One more story about J.—. One evening when we had got back from a long train journey he seemed noticeably depressed, and when I asked him if anything was the matter he told me a doleful and horrific tale. At an intermediate station where he had stoppd for some time he had been met by a female relative living in the town who had given him disastrous news of his family in the distant south. One of his two brothers, in a mad fit of jealousy, had strangled his own wife and murdered the other brother whom he suspected of unbrotherly behaviour in the home. He had then hanged himself. It was essential, she said, that J should return home at once and take charge of this deplorable situation.

It happened that the following day we were leaving for Simla, and it would have been a disaster for me to have lost the services of my bearer, as J himself realized. I had a feeling, too, that he was not very keen to face the position. I told him I could not give him leave there and then, but if he asked me a little later when we were settled in I would let him go. He thanked me as he knelt and miserably laced

my pumps.

But he never asked for his leave, and some time later I enquired whether he had had any more news of his family. He told me he had. He had, in fact, learned that the story he had been told on the station at Rawalpindi was a fabrication from beginning to end. Both his brothers and their wives were living in complete harmony and goodwill. There had not been even a black eye in the house. But they had decided, between them, that it was time they had a visit from J--- and so concocted an ingenious little story to fetch him home. Quite possibly they wished to touch him for a small loan. The Indian is not without imagination.

And now I suspect you have heard enough of J- for this morning, so we will leave him, as I left him, outside the docks at Bombay, in his neat white summer uniform, dutifully saluting and hoping that I should return from my leave a fitter and a fatter master. Fatter I was destined in course of time to become, but I did not return. Farewell, then, worthy J—, expert exchanger of dud for sound rupees, moderate darner of socks, devout worshipper of the gods and first-class servant.

#### XXVII

To change the subject I will describe a trifling incident (all my incidents are trifling, I am afraid) which occurred when I was motoring down from Rawalpindi to Lahore and which impressed me considerably at the time. Pindi, which I visited several times, seemed to me an agreeable place, one of the most northerly towns of the Plains and ringed about by the dark leonine hills of the Frontier. It has a military flavour and a pleasant green golf course. But I will defer my recollections of the Frontier and of the golf courses of India to a later note.

As I say, I was returning to Lahore by road. It was, I think, early spring and I stopped by the roadside about one o'clock to eat a snack lunch in the pleasant sunshine. I sat on the running-board of the car munching sandwiches and cracking and peeling the shells of small hard-boiled Indian eggs. I believe there were a couple of bottles

of beer about too.

The long, straight road and the flat countryside were deserted. The only living thing I could see was a big black ant hawking backwards and forwards in the dust at my feet on its long stilt-like legs. I was mildly curious to see whether it could locate food by sight or smell and threw down one or two bits of egg, which it was not very clever at tracking down, though it exhibited visible traces of excitement. Soon a couple of sparrows appeared and I began throwing them bits of bread. More sparrows came, and before long several mynahs and larger thrush-like birds joined the party. trees and bushes by the wayside became thronged with hungry life. There was a sudden whirr of powerful wings and a kite-hawk swooped to catch a crust of bread in its talons in mid-air. More came, followed by larger birds of prey which perched in the trees and watched the scene with yellow-lidded eyes.

It was a remarkable transformation, in a few minutes, from a deserted expanse

inhabited only by myself and a single rambling ant to a scene of noisy swarming wings. I finished my lunch, scattered the last crumbs, lit my pipe and prepared to continue my journey. Glancing upwards I observed a speck in the sky. It grew larger. Other specks appeared. From the vast heights and distances of the empty heavens the vultures were coming—dozens of them, hundreds of them, from all points of the compass. It was an impressive sight.

I call this picture "Hungry India."

(To be continued.)

## THE NATIVES OF AFRICA

THE portrait of mankind is in four prime colours and a mix: white, yellow, red, black and the indiscriminate khaki inevitable to the canvas. In Africa, apart from the Trace of white in the comparatively small European element, black and khaki predominate,

with perhaps a small dash of yellow in the aboriginal Bushman.

The black can be very black, and has the habit of persistence. Time and again compromises revert to type after a generation or two, so powerful is the prime virility of the black race. The khaki also has firm features, more notably those of culture and hardihood. The khaki of all shades, and from all courses, has its root in miscogenation, in great part due to the appalling slavery of the past, which sought in Africa the wares for its world market; and to what is known to-day as infiltration, by both design and accident.

Were that all, this task would be simple. The dividing line between black and khaki is, however, as vague as it sounds. Superimposed on the colour scheme are broad and indetermined characteristics, of language, creed, aboriginality, and culture, defying any but detailed description. There are hundreds of tribes, more often than not with their own separate languages or dialects, laws, customs and problems, owing all manner of different allegiances, within a geographical organization as illogical as native inconsequence could provide. Their masters include the British, French, Italian, South African, Egyptian and Portuguese, among others.

Hill and plain, bush and jungle, marsh and forest, river and desert, temperature

Hill and plain, bush and jungle, marsh and forest, river and desert, temperature and climate, town and country, have all produced their important variations, north, south, east, west and centre, to blend the heterogeneous whole into that great human

enigma—the Dark Continent.

The story of the subjection of the black during the eighteenth and nineteenth centuries followed millenia of every form of vicious activity it is possible to conceive. As western civilization, save the word, reached its adolescence, the products of its system leapt upon defenceless Africa, making merry with the pastimes of its predecessors, until the bleeding land wept for the days of the ancient Egyptian kings when, if life was hell, at least it was life. Almost within our ken great European states marched ruthlessly through an almost virgin land, slaughtering and enslaving where they could, setting an example which the Turk, the Egyptian, the Arab and the Moor were only too eager to follow. All over the Continent this hideous spectacle of cruelty laid horny hand on the priceless life of the wretched people, harrying and carrying them hither and thither as part of the vested interests which linked souls with silver. Coincident with the scramble for lives came the scramble for square miles. The public horrors of the Congo, of Liberia, and of elsewhere, remain the mausoleums which history has erected to the license they indulged.

Livingstone, Stanley, Samuel Baker, Cecil Rhodes, and Charles Gordon, among many others, conceived ideals out of this ghastly shambles, ideals which have, judging

by results, at least ameliorated the lot of the wretched natives themselves.

Depletion and slavery rife from time immemorial, it is small wonder that even in the fastnesses of their mountains and swamps, forests and bush, and desert distances, the natives still remember the dark days when their wives and daughters were driven like cattle to mother the khaki-coloured country in the north; while those of the men who were not killed were bartered for goods all over the world, aye, even in America. A thousand and more raids for slaves, black diamonds they were called, culminated in the most tragic horror that has probably been enacted within living memory. When Gordon was killed, the Mahdi, and subsequently the Khalifa, in the name of Islam for twelve years so misgoverned the six million people of the Anglo-Egyptian Sudan that whole tribes vanished from starvation and oppression, until only about two millions remained to tell the sad tale.

It is obviously impossible in a few words to give more than a broad picture of the African native and his life. In the background are great forests and jungle, clearings here and there rising to the foothills of gaunt mountains, or stretching towards the vista of vast waterless deserts. Flowing hither and thither through mighty lakes, great rivers and streams, on their way to the sea pass through foul swamps to bring life everlasting to that part of nature which swarms in the dry season to the banks, man and beast, bird and vegetation alike.

Paint that picture at another time, after the rains, and the crowd of all things bright and beautiful is dispersed about the plains into the very mountains themselves.

gracefully enjoying the leisure of nature, ever the privilege of the simple life.

Thus in África, peopled by dozens of distinct races, with thousands of tribes divided into illogical groups, with equally illogical characteristics, often embracing each other, perforce to include a mass of relevant but unwieldy detail. No matter how long or how close a traveller's contact with Africa, he cannot adequately describe her entire racial contortions. Ethnographically it would lead to a geneological list, tabulated with notes, which would in the end mean nothing, because of cross strains of blood, thought, and every conceivable human activity. Wherefore the excuse for the generalities that follow is that record of human interest is sometimes of greater consequence than the mere facts of the genus of the species.

For convenience in presenting the subject, the natives of Africa are grouped into arbitrary herds which, for want of a better terminology, are driven into the following eight pens, more or less in a cultural order, which obligingly (except notably for the

dwarf races) range themselves approximately from north to south:

1. The Fellahin, Riff, Moor, Abyssinian, and others, Semitic and Hamitic (in the coastal belt north and north-west).

The other Arab types (in Northern Africa, mostly above the tropic of Capricorn).
 The Upper Nile tribes (about the banks of the River Nile).

4. Negro types (mostly in the Sudan belt between the tropic of Capricorn and the Equator).

5. Bantu and Kaffir types (mostly south of the Equator).

6. Hottentots (towards South-West Africa).

7. Bushmen (in South-West Africa).

8. The Dwarf Races (of the equatorial forests).

# THE FELLAHIN, RIFF, MOOR, ABYSSINIAN AND OTHERS. (In the coastal belt in the north and north-west.)

Word of Africa would be incomplete without reference to the Fellahin, the Egyptian peasant who labours in the cotton and corn fields of the lower reaches of the Nile valley and its delta, as he urges three crops a year from the bountiful soil that gives the richest part of all Africa its wealth. Essentially peasants, they toil as families from dawn till dusk, with an astonishing vigour, like bees, year in year out, in small fields generously watered by the vast irrigation system. Their leisure, if any, is spent in their home life, where they live in their hordes, crowded among innumerable small mud huts for the most part situate on the border between cultivation and desert.

The Fellahin are the descendants of the mythical Egypt of the past, a people civilized according to their own standards, through their contact with Europe and because of the vast interest displayed by the world in the sea communications to the

Far East.

Whether the Semitic and Hamitic influences came through Egypt or from the

coast, both originally came via Arabia and the Caucasus and belong to the same

branches of mankind as most Europeans.

Africa can be divided into two main groups, northern and eastern. The northern group includes the inhabitants of North Africa generally, the Riffs, Moors and Berbers of Tripoli, Tunis, Algeria and Morocco; the elusive Senussi, the Zuareq and Tibu of the Sahara, and the Fulah of Nigeria, among many others found mostly north of the Sudan belt. The eastern group includes the Egyptian Fellahin both ancient and modern, the Berberines, about the lower reaches of the Nile and many of the Abyssinian tribes.

These North African peoples affect the customs and dress briefly of their Arab half brothers. Their culture and dignity are those born of the desert, their lives the carefree nonchalance of all the peoples wedded to Islam. The Moors were originally a branch of Mahommed's family, the Idrisis, founded in the Golden Age, about the

time that Haroun-Ar-Rashid flourished, in the eighth century.

The dominant races of present-day Abyssinia are Semitic, Tigre or Agazi in the north, and Amhara in the south, and came from Arabia soon after Christ was born. The aboriginals were Hamitic, represented by the Agau and Falasha in the north, by the Galla (Oromo), Sidama, and Gonza in the south, and by the Danakil (Afar), Faltal, and Somali in the east. Many of these tribes, for long isolated by the distance of their gaunt mountains, have as amazing and wild a record in their cruel doings as probably anywhere in the world. Raiding, slavery and lawlessness have long been bywords among them, even into present times.

Most Abyssinians deplore trade and prefer the profession of arms. Their native industries include weaving cotton and wool, leather work and work in metal. Regrettably there is no place here further to discuss the thousand-and-one interesting customs

and traits of these unhappy peoples.

## THE OTHER ARAB TYPES

(In Northern Africa, mostly above the tropic of Capricorn.)

The other Arab types, found mostly in Northern Africa above and about the desert belt, include the settled descendants of the offspring of Arab master and black slave; and the hillmen of the north and east with their fine, clear-cut features, hardy stock largely untouched by raiding elements because of their fighting qualities and their distant and unapproachable fastnesses. They are not Arabs proper, although they sometimes claim Arab kinship.

The pilgrimage to Mecca, from the north and west of Africa, through French West Africa, Northern Nigeria, French Equatorial Africa, and the middle of the Anglo-Egyptian Sudan, to Suakin for the boat to Jedda, has engendered for centuries what is really more a Moslem than Arab strain, which has no doubt done much to develop the

nomad and semi-nomad spirit found everywhere along this belt.

These peoples leave the baser calling of agriculture to the blacks, and regard the white man as an equal and not as a master, a trait which developed from the day they accepted Islam as their God. They do not take readily to European standards. Nor do they necessarily think that Europeans are right. They hold with what is perhaps a more aristocratic attitude towards life in its baser forms. The tawdry nature of civilization has no essential message for them.

Their noses are usually straight. Their lips may be thin or thick, the hair sometimes woolly, depending on the cross strain. Their skin is khaki, of almost any shade.

The Arab types may be classified into three kinds: nomad, or "people of the camel"; Baqqara, cattle owners and semi-nomad; and the settled tribes, those permanently living near water and in villages along the river banks and about the lakes. Some of the tribes include all three types, such as the Kanaena of the Anglo-Egyptian Sudan. Two of the strongest and wealthiest camel-owning tribes are the Kababish and the Kawahla, rival tribes whose grazing areas extend over hundreds of square miles.

The nomads live in their camel-hair tents as they pass from one grazing-ground to another in search of water for themselves and their beasts. Semi-nomads have villages to and from which they return as they take their herds to seek pastures new, hillmen and those of the plains varying their lives to meet local conditions. Those settled in villages find themselves in mud-huts or straw tukks, dwellings about the size of a

large bell tent, with openings often little more than a hole in the bottom. The hillmen, on the other hand, build themselves small houses in stone.

Other Arab types are the Mazza in the Eastern Desert, the Aulad Ali of the Delta and stretching across Tripoli, the Harabi of the Fayum. The best-known Nubian tribe

is the Danabil of Dongola, to which the Mahdi belonged.

Most of the Arab types wear the long flowing abba of the Arab and a kaffiyak on the head. The women wear either the rags of their masters or affect a dark blue or red. Most African Arabs, like their Arabian brothers and sisters, sit on the floor and

, eat with their hands.

The Arab types have little other industry than tending their flocks and herds, and the more primitive forms of agriculture, although there are, of course, exceptions. They know how to tan leather and fashion swords. Above all do they know how to do nothing. Primarily they are caravan leaders, until the towns claim them for primitive industries. This applies to most of the tribes in North Africa who own the many herds of livestock, all in poor condition and fetching low prices. The Arab types try to make both ends meet by the single process of bringing them together. This applies generally to the hills and the desert, which breed hardy peoples who are content with little except leisure and companionship. Near-to-nature beings, they spend their leisure talking by the side of their wells and streams; fighting if they get the chance; and in the sport of intrigue, sweet breath of life.

The true Arab is an aristocrat among men, a gentleman in his rags. The poorest

among them often has manners which would shame many a courtier.

## THE UPPER NILE TRIBES (About the banks of the River Nile.)

The Upper Nile tribes are those that find their livelihood about the upper reaches of the Nile and its tributaries. They include tribes like the Mittu, the Shilluk, Annuak, Jur, Dinka, and Nuer, among many others, some of them living a life almost impossible to believe—hunters, farmers, fishermen all, long since and often subjected to external influence. The most typical are the Shilluk and Dinka, tall black people with long heads, often with a strong Hamitic strain, with thin lips, fine foreheads, and high-bridged noses. The Shilluk is culturally nearer the Hamite than is the Negro.

Shilluks have a dignity of their own, with little desire for European civilization or clothes or sugar, and with an almost fanatical respect for their cattle. Their attachment to their cows is so close that they are often more fond of them than of their women, whom they will not allow to touch a cow, each one of which has its own name. As night falls the Shilluks will surround their beloved cows with fires that the smoke may keep away the mosquitoes, as they bed them down and wish them good-night. Among the Shilluks it is the men who powder and paint and weave their hair into fantastic shapes; it is the men who preen themselves, and display a strange vanity about their conceited faces. Yet they are not effeminate. Rather are they very much men about the village.

One has to talk to a Shilluk in his own tongue to learn of the depth of his tradition, a matter of over four hundred years under an organized monarchy with a distinct religion. He has the appearance of being inherently lazy as he lies on the river bank. covered with ashes and the dung of his beloved cow, contemplating his long legs and doing the nothing to which he has ever been accustomed. Yet he has a great dignity

in his nakedness, and is usually a well-ordered and rather fine-looking man.

The Shilluk king is not allowed to fight, and still retains much of his old authority and a bodyguard. He rules at Kodok (Fashoda of fame).

The Dinka wears no clothes of any description, and ekes out a pitiable existence in mosquito-infected swamps, far removed from the hand of the old slave-trader who drove him there. His weapon is still the arrow.

### NEGRO TYPES

(Mostly in the Sudan belt between the tropic of Capricorn and the Equator.)

Although the Negro belongs to Africa as we know it, no negro skulls of any great age have been discovered there. Yet slate pallettes of five thousand years ago show negro captives with their woolly hair, similar to those now found in Kenya.

The story of the negroes probably started before the Indian Ocean was cleft from Africa by geological upheaval. Sufficient here that to Africa belongs the negro proper, although it is as well to recollect that even in Africa the term negro strictly belongs to the belt between the equator and the deserts in the longitude of the Sahara, bilad-es-Sudan, land of the blacks, and has come to embrace a long line of bastards. South of that belt are all manner of dark-coloured peoples. North of that belt the khaki-coloured gentlemen of Arab extraction predominate.

The negro proper is distinguished by his countenance, black or dark brown skin, thick lips, broad pug nose, and short woolly hair. His jaws project from beneath small if prominent cheekbones. The palms of his hands and the soles of his feet are khaki. His arms are long, legs thin with small calves. He has broad flat feet with a low instep. His skull is thick, often very thick, and long. These characteristics obviously vary widely with the tribe and its history. He is more like a child than a grown-up.

A few words about some of the main strains.

To the west and east of the Nile hundreds of black tribes persist, distant from the beaten track. Among them are the Nubas (not to be confused with Nubians), who live in the hills about the middle of the Anglo-Egyptian Sudan. They wear no clothes of any description, women and men, where their brothers and half-brothers wear beads and the proverbial leaf, or the long flowing white clothes associated in history with the Arabs of the plains, the Bedouin and the Dervish. It is no uncommon sight to come upon a native Nuban couple, the man wearing a rifle, his wife wreathed in smiles. A rifle means prestige in the eyes of the women-folk, who will have none of a man without a gun.

Some of the Nuban dances are fascinating, with remarkable rhythm. Shaking their shoulders and stamping their feet, warbling some weird incantation, they dance long

into the carouse of night.

Among the Nuba tribes an unmarried girl usually wears nothing at all. As soon as she is engaged to be married she wears a simple girdle round her middle, carrying a thin tail in front. When she is married she wears the full dress, a sort of bearded sporran with a thin tail behind. These dresses vary appreciably with individual tribes. These girls dress each other's hair with copper-coloured mud, to achieve a display of surpassing artistry. Their bronzed bodies catch the glint of the sun, to show off to perfection figures and deportment fashioned by the gourds of water they carry from the well each day. They sometimes paint European clothes on their naked bodies, to intrigue the occasional visitor.

Many hundred miles west of the Nuba mountains are the Hausas, a race of Negro-Arab type in Nigeria, of the Hamitic group but with a strong Semitic strain. They teach their children to read and write in the Arabic pattern and have been comparatively civilized for a long time. They are black, like most of the Sudanese, with long heads. Of medium height they are normally agreeable and cheerful beings. In all they number about six million within the emirates of North Nigeria. Farmers, agricultural and pastoral, they are developing into good artisans in all manner of semi-European indus-

ries. They are organized into tribes under Emirs or Princes.

The Hausas were never a great military race, although they developed considerable power. They live under the control of chiefs in organized villages, and may be considered one of the most homogeneous races at present in Africa. They worship an Almighty, some of them identifying the sun with that Being.

The Fulahs, also of Nigeria, may have embraced the faith of Islam, but they are still pagan at heart. Good farmers and traders, they weave and spin cotton, and for centuries have mined silver, lead, tin, iron and gold. By nature peaceful, they make

fine soldiers, brave and of considerable strength.

The Jukun tribe remains among the most interesting in all Africa. The boys would be shown the sacred symbols before their shrine. They would then be led out to return blindfolded. The bandage would be removed and the boys would be asked what they could see. Unless they said "nothing," they were deemed to be unfit to be trusted with the secrets of the tribe, and were forthwith executed. Their king is almost a god who was, until recently, ceremoniously sacrificed after seven years' reign.

The Hausas, Fulahs and many other races show marked political ability, largely

due to their contact with Islam, and later with the white races.

Another race of Negro type which deserves mention is that which gives its name to the French Senegalese troops which strictly belong to the Senegal River. Although the original Senegalese are of negro stock, Moorish and Fulah interference, and that of Islam, have done much to corrupt the original peoples into what has nevertheless proved to be a fine race of fighting men. Their prime industries are breeding camels. cattle and sheep; weaving, and now brickmaking; their agricultural life, producing corn and coconuts.

The Europeanized natives in many parts of Africa have remarkable intelligence, and have developed well beyond the dignity of their nativity. At the ports, in the factories, and on the roads and railways, they are slowly learning the white man's languages, trades and professions. Some go to schools and universities. Others, the sons of chiefs and sheikhs, learn the business of administration, and have been known to reach European standards. Their leisure they spend, where the facilities allow, in the cinemas, or at the races, hunting, shooting and fishing. Imitating their white masters, they aspire to a culture of which their blood brothers have not even heard.

It would be ridiculous here to dilate on the customs of the large number of tribes that frequent the Sudan belt. Sufficient that they subscribe to all manner of fantastic

habits which begin to fade where Mahommedan influence is strongest.

The degree of black influence, and its importance, varies from a mere handful to a great people like the Ashanti. The Dahomeys, for instance, had a corps of women soldiers so-called the Amazons, originally criminals or wives taken in adultery. In battle they had an unequalled reputation for ferocity and courage. Their aim was to bring back trophies of the battle, torn from their enemies, dead and alive.

In the early nineteenth century, the reigning monarch decided upon an immediate increase in the corps and gave orders that every girl in his domain had to come before him that he might decide if she were fit to go into his army. He would then swear her to celibacy, apart from the royal prerogative of course, when she would be granted the status of king's wife who could not be touched without fear of death or torture.

Most Negro tribes are beset with local traditions and customs. Their fondness of animals like the dog and the hen show them as essentially a domestic race. It is often a matter of honour among many of the tribesmen to ensure that their chief shall be given sufficient food to enable him to honour visitors and to sustain his position.

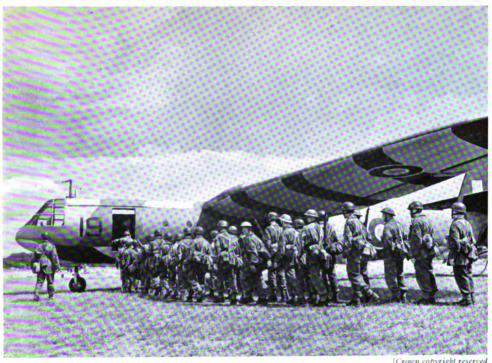
The average wages of the native are between a shilling and two shillings a day, where the native can be induced to work. The amount of work that they do is all too often as little as to justify this small wage. Blacks, like the Arab types, for the most part like to spend their time trying to avoid work. Their role in life as they see it is merely to do the bare necessities. Bare describes their whole existence. With hoes or primitive ploughs drawn by oxen, but more often than not drawn by the men themselves, they scratch the earth to sow their corn or cotton. The closer they are in touch with their white masters, the more they find they have to work; from their point of view a bad business. The porterage is usually done by the men, who carry goods, like tins of petrol, on their heads for long distances. Their leisure they spend in babbling and in sleep.

Among the many trades practised by Negroes are those of the smith, weaving, potting, working in wood, rope-making and boat building. There is place too for him who can sing and juggle and amuse his kind, wandering minstrels. Many of the tradesmen, shoemakers, tailors and leather-workers go from place to place where those

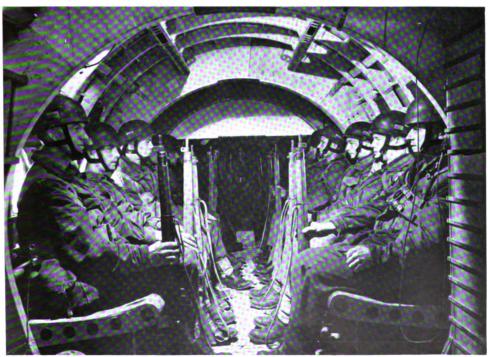
industries have a market.

The old woman of the African tribes is she who conserves the customs and wields an important influence over men and women alike. She instructs the children in the lore of the tribe while they are yet young, and sees/to it that she builds up for herself an influential position and is held in esteem. In parts she may even reign as queen, like the old queen of the Ashanti, who so vigorously resisted British influence.

Between man and wife labour is clearly defined: that the man performs the tasks demanding the greater physique, such as clearing the bush or hunting or building or making roads, and the more responsible work of planning the community life and



AIRBORNE TROOPS BOARDING A HORSA GLIDER.



INSIDE A HORSA GLIDER.

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[Crown copyright reserved]
ARMED WITH A STEN GUN, A CORSICAN GUERRILLA SURVEYS SPITFIRES, MANNED BY
FRENCH PILOTS, ON A CORSICAN AIRFIELD.



THE LIGHTER SIDE OF LIFE AT SEA.
"Crossing the Line" ceremony on board a troopship brought safely through the U-boat-infested area.

directing the policy of the tribe. The woman often does the work not only in the house but in the fields, sanctioned by tradition. Neither man nor woman would, in many tribes, openly do the other's work. Almost universally it is woman's role to fetch and carry the water and wood for the fires, cook the food, and often reap the crop. All day at work in the sun, the woman will return to her tukl, her child on her back, to prepare the evening meal and to care for her other children, perhaps to grind corn.

Despite these many tasks, and those of her menfolk, they all seem to find plenty of time to gossip amongst themselves, to go to the nearest village dance, and to romance

to their children, much as we do.

A husband has a very real responsibility towards his wife, who has a strong claim Above all, through the intense family life that normally persists, the wife has on him. her children; as with her western sister a most important tangible bond which protects her privileges and her happiness more than does any other. A native arriving late back for function is met with much the same welcome as is an Englishman in his castle.

Wives are expected to obey their husbands. For disobedience or unfaithfulness, and for rowdiness, he may beat her and he may tie her legs together. Again, her family will usually take care to see that no insult is done them all by too rigorous or fault-finding an application of this inherent prerogative of the male. Marriage may sometimes be dissolved by the wife leaving her husband, or by him telling her to go. As in Europe, friends seek to bring them together. Where these efforts fail, they are pronounced separate and the local lawyers get busy. When quarrels occur, everyone does what is possible to avoid scandal, all reasonable efforts being made to solve them by palaver (conference).

Rich natives have as many wives as they can afford, each often in a separate house and running a separate business, from the profits of which she supports herself, her children and even her profligate husband. Where wives are in great demand, the marriageable age becomes lower, a tendency European officials are ever trying to check.

A man who marries more than one wife regards them as part of his wealth, and is respected according to numbers. Incidentally, many women prefer their husbands to take another wife, as it often means more hands to the field and mill, and leaves the first wife with a clearly defined dignity. The custom has an important application because not only are there more women than men, but sometimes a wife has to be away with her own family in another village for months on end, due to some burial ceremony or other. Or her husband may be forbidden by local custom to go near her while she is feeding his child, often a matter of years.

It is usual in many of the tribes to betroth their children in marriage while they are yet young. The girl may from childhood know who is to be her husband. She will accept presents from him. Her refusal to marry him at the appointed time would bring her into strong criticism from her tribe.

The woman usually belongs to the man. She may not do as she wishes. The man presents her case at law and usually during religious observances. As a result, the man cannot commit adultery in the legal sense, but can claim damage to his property if his wife commits adultery.

Marriage is often a group matter, where one group or tribe will deliver one of its daughters to another group or tribe for reciprocal favours. Sometimes a gift of cows

or rifles will accompany the exchange.

Many Europeans think black girls can still be bought and sold. The African native is vehement in his protest against this, for most of their wives have prescribed rights which are not easily gainsaid. The money paid to them or their families is an

essential part of the contract, much as we regard a marriage settlement.

By temperament Negroes are brave and cruel. Simple and sensuous, they lose their dignity in detail. This explains many of their primitive customs, which quite recently included the sacrifice of humans, and witchcraft close-hauled to unbelievable They often have elaborate rituals, sometimes approaching black magic, within illegal secret societies performing atrocious acts. The present tendency is for these secret societies to be diverted into activities more profitable to the community.

Cannibalism is said still to preside in secret, far removed from the right hand of the administrator. Many tribes mutilate their bodies, notably ringing nose and ear,

deforming the mouth, filing the teeth to points, or knocking out the incisors. Among a thousand barbarous practices are those of cutting great weals across the faces of boys and girls alike, a widespread custom, and intensive systems of tattoo on both sexes at all ages. Much of this tattoo work is designed to raise weals as much as an eighth of an inch and more out of the skin in all manner of designs. The circumcision of boys and girls is a widespread practice among both black and khaki tribes.

Some of the tribes practise polygamy, the cost of the wives varying from five shillings upwards. In some of the tribes the men are shared out among the women, three men to one woman.

Their religion has no direct link with morality as we understand it. Many of the tribal beliefs exist not as part of a moral code, but to explain the facts of life as the natives find them. Good and evil, important to Christian, Mahommedan and Jew, have not the same message for the pagan.

One of the extraordinary features of Negro native life in Africa is not only the variety in their customs and languages, dress, and even religions, but the extremes to which these lead. One tribe will wear no clothes at all, where another, near neighbours, will bedeck themselves gaily and look upon undress as wanton. One tribe will regard laxity in the marital state with frequent pleasure, where another, stitchless, have an unbelievable regard for moral probity unimpaired within history by no single instance.

In many tribes the men will sit and smoke as their women fetch and carry the water and loads, and till the ground, while in others the women will watch and the men will work. The reasons for these curious anomalies are far-reaching. Some of the tribes, for instance, have for centuries been more subject than others to the threat of raids, by white slave raiders and black head hunters alike, or to the need of hunting and trapping for their livelihood. Thus it became a custom for the young men of the village ever to be on the alert and ready to play their part at the call of the head-men. Under these conditions there was not time for these young men to be skilled in the domestic virtues. Custom and tradition decreed their role to be that of the warrior. The business of the house, tending the flocks and reaping and sowing, naturally fell to the lot of those whom they existed to protect, the women and the old men. And the old men were too clever, and too busy being old men, to do more than see that the women worked to everyone's satisfaction.

Whereas their distant neighbours may not have been subjected to quite the same threat. Perhaps they lived in a more secluded region among some foothills. Perhaps for generations they enjoyed the protection of some powerful and friendly tribe nearby, of like blood, so that the men were not ordained merely for fierce motives; when the women, through successive generations, would be quick to see that their menfolk did not for long remain a nuisance about the tukl.

Another feature of many of these negro tribes is the difference in tendencies that they have towards the married state. Some of them are required to have scalps at their girdle before they are deemed worthy of the tribal maidenhood. Others have to distinguish themselves in battle, or are required to produce a cow or cows, or wear a rifle. Each and all, some merit has to appeal to the lady of their choice. Among the Abyssinians, the Galla, for instance, before he is allowed to marry must get his man. He brings back the scalp and quietly, perhaps as dusk is about to fall, takes his place in the centre of the market square. Soon all the girls of the village are about him, putting butter in and pulling his hair, when it is at his choice which bride he takes.

One of the outstanding features of the Negro is his physique and his dependence upon agriculture. Willing, he has the capacity for being made into a good soldier, is adaptable, and would appear to have most of the traits of the most pleasing examples of mankind, despite the record of oppression behind him.

His life, apart from agriculture, embraces hunting and fishing, looking after cattle, or paddling a canoe. The boys are taught their roles when, at about ten years old, they proudly accompany their father or a relation into the fields. Their next step is to work in a little field set apart by the fathers for their sons, to help them to be inde-

pendent, and to anticipate the day when the older man will not be strong enough himself to support the family.

Their weapons for agriculture are as primitive as the results, as they scratch what must be the most fertile soil in the world. In this they have one notably carefree habit. They burn the bush in order to provide them with new fields, reckless where the fire might end. They have found through experience that the ash of the bush acts as manure and destroys vermin, besides making it easier to catch game. Thus each year they seek new fields, to the detriment of great stretches of African territory.

There is a great tendency for the natives to over-produce good crops. The cocoa crop and the ground-nut crop are two that periodically bring levels of prices down

elow cost.

There is no doubt that as time passes the young Negro will tend more and more

to take advantage of education and towards European standards of civilization.

Many tribes in West Africa worship the earth as a god, offering sacrifices in due season, for agriculture has much to do with many of their religious beliefs and customs. Some tribes expressly leave the sowing of corn to their womenfolk, ascribing to them all fruitfulness. Many press the young men and women into the fields, ending the day's work with song and dance. Some even go so far as to employ a drummer to give rhythm to the work.

Many of these tribesmen, both black and khaki, live by cultivating doura, a grain which provides them with both food and drink. With little sense for the future, only with difficulty can they barely be induced to save seed for the coming year. When the spring draws nigh, sight of the next crop in their minds, they turn what is left of the harvest into beer or spirit, with which they make merry as the young corn shoots upward and their crop for the following year's orgies seems secure. There is no thought of drought. All is improvidence, and when a cloud of locusts descends upon the young corn, the tribe awakens to the hideous reality that not only is the cupboard bare but there is neither bone, dog, nor Mother Hubbard to save them.

In the old days the only alternative to death by starvation was a raid on some

more or less fortunate neighbours.

Among the tribes in the regions infested with big game, the men are hunters all. They will go after anything, from a gazelle to an elephant, with a spear, a bow and arrow or a rifle. They have their own methods of bringing down their quarry. Among two of the more interesting are the ringing of lion and the trapping of elephant. For lion, the natives will form a circle, every man of the tribe taking his place in a ring up to ten miles or more in diameter, round the area where they know the lion to be. With loud cries and raised spears they will slowly close in until suddenly the bewildered and thoroughly frightened lion will try to spring clear. To someone belongs the honour of throwing the first spear. Thus are the young men blooded in these piping days of peace. Should the lion give fright, the natives near the one most threatened do their best to draw it off with their spears and to frighten it with noise, each hoping to have the honour of despatching the lion. Eventually a spear will go home, and with it some young man becomes a hero for the day, all manner of favours before him.

They trap elephant by digging a pit, which they cover with brushwood. They then fell a large tree, around which they fix a rope with a noose. The noose is placed so that it lies all round the pit, into which the elephant will, they hope, step. A leg inside the pit, the noose is tightened. The elephant is thus firmly lashed to a tree trunk, which severely hampers its movements and enables the natives to hamstring the wretched beast. In the pristine state, the native, whether his culture be that of the Arab or the lowest form of Negro life, counts no man his master save him to whom he owes allegiance.

The true Negro arts do not go further than spinning, weaving and dyeing, pottery,

husbandry, primitive wood-carving, and the smouldering in mine and copper.

Their villages may be anything from small mud huts sitting on the only dry land amid the squalor of swamp; to villages of the same kind of huts, owning allegiance to chiefs and to the native administration. Their clothing may be anything from nothing to rifle and spear, beards, a loin cloth, or the more fullsome robes they have seen the

Arabs wear. The proverbial fig leaf is in parts the standard form of dress for the native debutante.

Most of the tribes of Africa have a very clear knowledge of the boundaries of their territory, and the rights over the forest. It is usual for each tribe to be held responsible for the roads passing through its own territory. Most of this work is done without payment, considered as a form of tax, or to contribute to the dignity of their chief. As a rule the labour is short in duration and is employed at times when the fields do not call for work.

# BANTU AND KAFFIR TYPES (Mostly south of the Equator.)

The effect of Hamitic interference with the Negro and Bush races produced semi-Hamitic races which embody some of the features of one or other of the types that have gone to breed them. The Hamites, thanks to their greater culture, impressed themselves southwards upon the black African population, through the centuries, to form races like the Bantu who marched yet further south against their weaker half brothers.

Dignified, proud and vicious, the Hamite proved himself a sturdy warrior, and of such hardy stock that, when crossed with the vigorous black tribes, he formed races stronger than the parent races themselves. As successive waves of pastoral Hamites overcame the agricultural Negroes, they enforced a higher culture upon their more aboriginal opponents. The result is seen in races like the Zulu and the Baganda, the Matabele and the Marotsi, the Bahima and the Bahera.

The semi-Hamites are tall thin people with long heads and faces, with distinct characteristics, normally leading both an agricultural and a pastoral life. Some of them are semi-nomadic and remain more or less naked, although many now affect clothes. These Bantu peoples drove the Hottentot and the Bushman into the south-west of Africa, retaining the best soil for themselves. They stretch through south central Africa to south-west Africa, organized in a large number of tribes generally resembling each other.

Usually black, khaki pointing to miscegenation, particularly with Bushman and Hottentots, their hair is woolly and short. Their noses are more often than not broad, with prominent cheek-bones and lips and forehead. They are essentially Negro in type, despite the distinct Hamitic strain. Among the Bechwana the traits of the Bushman are not noticeable, skin light and face angular.

History recalls several instances where many of these tribes were able to unite to form a strong political community. Instance the Basuto nation, and the Zulus.

In their intimate life, the Bantus are usually organized in villages around a cattle enclosure in which they put their animals. Their dwellings are shaped like beehives, most of them with conical roofs, each with its own small garden wherein the women cook. The whole kraal is usually surrounded by a fence. They live on their agriculture and on the milk of cattle and goats. They do not kill their cattle, but rely upon hunting for their meat. Most of the tribes grow millet and maize, and occasionally vegetables like peas and beans. The men look after the cattle. The women work in the fields, often prohibited from touching the cattle by custom and religious observance.

The basis of their worship is sometimes the memory of their male ancestors, special attention being paid to those of the chief. Sometimes the ancestors live with the people, if that be possible, a portion of most things being reserved for them. Sacrifice and fire are part of this ancestor worship. The existence of taboos and witchcraft are among the many strange customs handed down from father to son, from mother to daughter. In Kenya alone the natives possess upwards of twelve million animals, cattle, goats and sheep. Not until the natives look upon their cattle as goods for sale will they stimulate breeding. At present they regard them much as we regard stocks and shares.

The Zulus, possibly the cruellest black race in all Africa, are a Bantu people in the south-east, who left the shores of Lake St. Lucia in the early nineteenth century to roam over Natal, Southern Rhodesia and Gazaland, and from the Zambezi to Nyasaland and Tanganyika.

The Zulus or Ama Zulus combined with other tribes, such as the Ama-Xosas, to form the Zulu Kaffirs. The name Zulu came from a chief, Dingis Wayo, who founded

the state at the close of the eighteenth century.

Swahili are a mixed Arab tribe of Zanzibar and Mombasa and the Rufiji. Due to their Arab influence they are Mahommedan, with a culture and enterprise that has made their language the chief medium of intercourse throughout east central Africa. Although

the language is of Bantu origin it has many Arabic words.

Linguistic criteria play an appreciable part when classifying the great racial groups of Africa. Thus Bantu has a widespread linguistic significance south of the Congo Nile Divide and is the *lingua franca* of inner Africa. In Cape Colony these people are known as the Amaxosa, Slambies, Tambookies, Gaikas, Gealecas, Fingoes, Tembus and Pondos, although the term Kaffir is the generic term and means infidels or unbelievers, a description given them by the Mahommedans around the shores of Africa. The Bantus are different from the aboriginal Bushmen and Hottentots, whom they conquered, about which more later.

The Kaffir, properly Kafir and formerly Caffre, has come to include not only the Bantus of South Africa but also the black tribes outside the Kaffir group, such as the Bechuanas. The Basutos and the Mashonas, although of Bantu origin and called

Kaffirs, are really separate peoples.

Many Kaffirs are more or less Europeanized, working in the mines and on the roads and railways as labourers and servants. In Cape Colony and Natal they are awarded citizenship. In Basutoland, Bechuanaland and Swaziland, the original native kingships are still preserved. They have to pay a hut tax and a poll tax, and revenue taxes for their boots, shawls and blankets.

Kaffir chiefs have long exercised control through their marriage rules, for a man does not reach his full status until he is married, a happy state sometimes postponed for years in order to maintain the old Zulu military caste. They do not like marriages between blood relations. They allow the women to own property but not to inherit it. The job of the women, among others, is to cultivate plots of fertile soil, to grow

the sorghum from which they brew beer.

Their dress includes crude jewellery in the hair and round their necks. Thicklipped, and mostly with flat noses, they carve wood and ivory and affect short skirts for work in the fields. They mostly wear few, if any, clothes, do the work of the farms and fields, tilling the soil and acting as servants to their many masters. enjoy themselves in much the same way as do their black and khaki brothers. With many striking customs they present a compromise between the extreme types that habit Africa, between the north whence they came and the south where they conquered.

#### HOTTENTOTS.

#### (Towards South-West Africa.)

The Hottentots, called Khoi-Khoi or Quai Quai, include the Namaquas, the Koranas and the Griquas, as well as what are known as the Totties, and have long been the servants of their Boer masters. It is wrong to include the Hottentot with the Bushman, who was originally of a different stock, although they are to-day often well mixed. The Hottentot is slight, with distinct signs of Mongol strain. His yellow skin and slanting eyes, flat nose and woolly hair throw back to two distinct lines of ancestors.

The Hottentots suffer a Hamitic interference with their basic language, which is similar to that of the Bushmen, largely monosyllabic without prefixes and sex genders, but with suffixes, characterized by clicks rather like those used by grooms to encourage their horses. The Bushmen passed these clicks on to the Hottentots, and to some of the Bantu dialects.

The Hottentots have many of the same physical characteristics as the Bushmen. They are taller, and unquestionably owe their separate existence to Bantu influence, gathered from invading Hamites whence they also gained both the language and cultural features which distinguished them from Bushmen. It is accepted that the Hottentots rose probably about the Great Lakes of Africa and did not reach the south until after the Bushmen whom they had driven there.



The Hottentot at one time occupied most of the western part of South Africa, from the Kunene River in the north to the Cape, extending inland to the Kei River, although he is now mostly found only in the south-west of Africa, north of the Orange River. They form a race which is slowly disappearing. Their customs and beliefs survive but faintly. The best-known tribe is that of the Naman, which consists of several tribes owning allegiance to a separate chief traditionally descended from one ancestry. These tribes claim certain water sources as their property, and used to wander with their cattle from one to the other in search of pastures new. The chief owes his authority to hereditary influences, and relies upon the elders of the tribe to help him govern. Although tribes may camp together, they cannot claim to be organized. Their order is based on the family system.

The chief difference between Bushmen and Hottentots is that where the Bushmen are primarily hunters for game and food, the Hottentots are part of a pastoral race owning cattle and sheep. They manufacture spears and arrow-heads, make beads and vessels from wood, and weave mats and baskets from reeds and rushes. They make bags from skins. Their culture is superior to that of the Bushman, although they do not paint or carve rock, an art at which the Bushmen excel, strange throwback, perhaps, to the ancient Egyptian slaves.

The Hottentot lives mostly on milk which he keeps in pots. The women do the milking, not the men, as in the Bantu tribes. Their diet includes vegetables, roots, berries and the melon. They hunt and trap like their kith the Bushmen, although the Hottentots have more elaborate snares, and no longer use the bow and arrow. They are beginning to take to agriculture and are slowly losing their nomadic tendencies, finding the permanent camp more to their taste.

Their camps are usually closed within a kraal, their huts arranged inside, cattle in the centre, with special places for lambs and calves.

The Hottentots formerly wore skins but they are now taking freely to European clothing. Both sexes wear copper trinkets and paint their bodies with ochre. The women wear beads and strips of ox hide about their legs, the men armlets of copper and ivory.

Hottentots are married under arrangements made by the parents, custom decreeing that the girl's parents shall pretend to refuse to deliver their daughter until after the boy's parents have exercised an adequate persuasion. During their engagement boys and girls may not communicate with one another except through the family. At marriage the bridegroom's parents provide the feast, to which the bride's parents sometimes contribute. On the wedding day, the husband and wife will sometimes each present their mothers-in-law with a cow to acknowledge that she nourished the boy or girl as a child. The bride is received into her husband's family at a feast at which only married women take part—to receive the girl into the community of married women.

In the past the custom was to abandon old men and women to die from want. Now age is respected. Many of their customs are similar to those of the Bantus. At all times is a brother required to exercise respect towards his sister.

There are many ceremonies at the important phases of life, such as birth, puberty, marriage, illness and death. To pass from one of these transitional phases to another, the individual has to undergo a period of trial, when he or she may be subject to a form of tattoo or cleansing or taboo. Animals may be killed to placate a suspected enemy until, in time, the new status has received the approval of the pseudo-religious arbiter.

These transitional rites forbid the person to touch water, which has a special sanctity to the Hottentot through his respect and use of the desert.

The Hottentots wrap their dead in skins which they sew together, wailing outside the kraal at night and until the body is buried the next afternoon. When the grave is dug, a small recess is made to one side. In this the corpse is placed on its back, the head turned towards the west. The recess is covered with bushes and a stone slab. A mound is shovelled over the grave, on which everyone present throws a stone or a twig.

Hottentot mythology includes the worship of heroes endowed with supernatural powers.

#### BUSHMEN.

#### (In South-West Africa.)

Bushmen are the aboriginal people of the southern part of central Africa, now confined mainly to the Kalahari Desert, although they once went as far north as Tanganyika, a fact disclosed by the discovery there of rock paintings and typical digging-stick weights. They are known as Bosjemans, i.e., Bushmen, although they call themselves Sann or Zann. They are now so reduced in numbers, and so cross-bred, that the genus of the species is rapidly falling away, watered down by constant cultural contact with the Bantu types. The Cape Colony group is already almost extinct.

The Bushmen are slowly receding from an Africa which was once mostly theirs. Stronger Hottentot and Bantu neighbours have won the cultural battle against the less intelligent and more primitive aborigines, of an ancient race which will soon be exterminated by the relentless march of primitive civilization. Bushmen are a rapidly disappearing people existing in the least fertile areas, victims of the march of their better organized neighbours. At one time they were at everyone's mercy. Although they now have nothing to fear physically from their neighbours, they seem unable to take advantage of the improved situation.

They are inferior to Negroes in numbers, culture and organization, and are essentially nomadic. The restriction in the areas available for their carefree pursuits has contributed much to their oppression, initially by the Hottentots who nearly wiped them out. Later, both Hottentots and Bushmen were restricted still further by the European advance from the south and the advent of the Bantus from the centre.

The Bushman is short, usually above five feet high, of slight build, with small hands and feet. He has a yellow skin which wrinkles readily, and has little hair on his head, which is low in the crown. He has a flat face with a flat nose and prominent cheekbones below a bulging forehead. Narrow of eye, often slanted, he has usually exaggerated buttocks. Where he gains in stature and has a darker skin, with a larger head, there is record of his relationship with tribes of Bantu blood.

A race of insignificant men, they make fine hunters, with a rare ability to use the bow and arrow in the sparse bush to which they properly belong. At the bottom rung of the ladder of human society they have little property or religion. They wear no clothes save a short loin cloth, which hangs in front from a girdle about the middle. Their ornaments are crude and curiously fashioned, and hang about the necks of the women.

They are a cheerful people, fond of dancing which has both a social and a religious significance. They are masters at impersonation, able to reproduce the likeness, mannerisms and cries of the human beings and animals they wish to masquerade. In the Herschel district of Cape Colony a well-known rock painting depicts a Bushman wearing an ostrich skin and stalking ostriches. They sing gaily, tunes difficult for an European ear to appreciate. Their art includes paintings and engravings on walls, caves and shelters, and is primitive but often correct in perspective. Their subjects are usually the hunt, dances, or religious scenes, in which a human figure with the head of an animal is well to the fore.

The Bushman is a being with little culture or social organization, living in small groups joined together to form a tribe which hunts in small independent bands divided into families. The leaders or chiefs of the bands are usually hereditary but have little influence. They are neither agricultural nor pastoral. They live by hunting game and for roots and vegetables, and have game rights which they respect among each other. They live in crude shelters made by branches cut from trees. Each family plants its own shelter near a water-hole. They hunt with the bow and arrow, using a poisoned barb, and obtain the poison from skins and plants or from the grub of the chrysalis of a small green beetle. Some tribes hunt with spears and throwing-sticks, and with traps and snares.

It is the women's task to obtain the vegetables, for which they use a pointed digging-stick. Bushmen light their fires with fire-sticks, sharing their food among all who are present. He who kills a beast retains the skin to clothe himself and his family.

Snaring skins is not an important pastime, for they wear practically nothing; the men a kind of three-cornered bathing slip tied round the waist, the women small aprons in front and behind. For special occasions they fashion themselves cloaks of skins sewn together.

Generally, the Bushman is monogammatic and forbidden to choose his bride within the tribe. Some tribes insist that the bridegroom should shoot a buck and present it to the bride's family for the wedding breakfast. It is customary for the young married couple to spend their first months with mother-in-law.

Normally, the children belong to the father. If he dies, the woman may marry again and present the second husband with a ready-made family. Should the widow not marry again, she looks to her husband's brother for support. It is usual for brothers and sisters to avoid each other when grown up.

Children are usually born in the bush, and are nursed by their mothers for three years or more. It is still a practice for a second child, born before the first is weaned, to be killed at once, which in part explains the small families and the gradual diminution of the tribes.

When the Bushman dies he is buried near his hut in the position of sleeping, on his side, knees drawn up. With him are placed all his belongings. Over him are laid stones to keep away the animals. The band then moves elsewhere.

Medicine men and witches regulate the important functions of rain-making and the initiation ceremonies. They are the doctors, their waning influence restricted to casting out the devil.

Their leisure they spend in either doing nothing or in wild ways. They live an indeterminate life, as near to nature as it is possible for human beings to contemplate.

#### THE DWARF RACES.

#### (Of the equatorial forests.)

The dwarf races, Pygmies or Negritoes as they are sometimes named, although not quite as portrayed in "Snow White and the Seven Dwarfs," are well typified by the African Akkas, their height being about four feet, smaller than the dwarfs pictured at Pompeii, Rhodes and Cyprus. They roam the dense equatorial forests. The Obongo and the Dwarfs in the Congo and Uganda are not unlike the Dwarfs of Ethiopia, heavy of head, thick-lipped, twisted legs, all part of a human group of which little is known.

Their skin is normally a yellowy brown, sometimes dark. Their bodies are often covered with fine hair. They have broad flat noses with little bridge, beneath large eyes. Their faces are broad. They live in small communities of about fifty huts standing in a clearing in the forest. Their weapons are the bow and poisoned arrow. Hunters and trappers all, they are looked upon as a vicious race, although they appear to live on good terms with the people about them. Mostly they wear no clothes save a short kerchief hanging from the waist.

#### Conclusion

One has to travel among these delightful black peoples to realize the charm there can be in the simple life. Among their own communities, in their crude dwellings, without taste for either civilization or its allurements, these naked native men, women and children present a front to life which seems to the onlooker to be unbelievably happy. They live mainly in the sun for long periods of the year, under conditions which know few of the worries that beset most of us, their own families and peoples for ever close about them. A locust cloud, or a too blue sky for too long, can bring hard times. In parts they still have their traditional enemies, among other tribes, which has for centuries ensured that the young men shall be worthy of the name of manhood.

In conclusion, may it be said that the civilization, customs and habits of the majority of the simple native tribes in Africa are basically similar to many of those on which we in Europe found our own civilization, particularly where they affect family life. Some of their strict marriage customs, beliefs in religious ordinance, agricultural and

pastoral pursuits, and crafts, resemble much that is done somewhere or other by their white brothers.

The native of Africa is essentially a man, his wife as essentially a woman. To meet them in their happiness, surrounded by their children for ever and a day simply tending their fields and flocks, under a warm sun, without clothes or guile, is to meet charming people.

E. L. H-W.

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## ON HAVING "HUNCHES"

By WILLIAM H. PICK.

Brown, of our Mess, believes in, and to an appreciable extent orders his life by, what are termed by the irreverent "hunches" and by the more austere "intuitions." On each Derby Day and each Oaks Day he has "hunches" which tempt those in the Mess who know him but little to speculate sums of money of various magnitudes on the chances of this horse or on that: his "hunches" for the various recurring classic races have, in short, won for himself and for others many fortunes in anticipation but none to my knowledge in realization. When he plays cricket he often has a "hunch" even before the ball is bowled that the coming delivery is the one to drive straight out of the ground, and very much more often than not his wildly circling bat does not even make contact with the ball. In the last match we played together he was the captain of the side and had a "hunch" that the moment was just ripe for him to bowl his slow, high-dropping "donkey drops" with much twisting of fingers and no spin from the ground: the two batsmen greatly, even gleefully, approved the "hunch" and the score rose amazingly. He also has "hunches" about the weather with considerable frequency and many of us, who should know better, have on various occasions laden ourselves quite unnecessarily with mackintoshes and overcoats as a result. At times, too, he has "hunches" that the post will bring for him letters of glad tidings or of advantageous import and maintains vigil accordingly in the region of the letterrack: his vigil is usually rewarded by emptiness. And as for his investments, they seem to be almost entirely based on his "hunches" and certainly they do not appear to be more remunerative than those made by others either after long consultations with acquaintances "in the know" or by the more simple devices of using a pin or tossing a coin.

Now Brown was fortunate enough, as he has often informed us in his more talkative moments, to go in his youth to a well-known school and to one of our older universities, and presumably, therefore, had delivered to him at that period of his life several discourses on the value of reasoning in the solution of problems and was doubtless often urged against "jumping to conclusions" and was equally doubtless often guided through

exercises of one kind and another whose aim was to practise him in the use of reason. I have little doubt, for example, knowing a little of that school and more of that university that Brown was often invited to admire and to follow the reasoning processes of Euclid and of Socrates, perhaps even of Newton and of Kelvin. But either the seed fell on particularly stony ground or Brown has been particularly forgetful, for nowadays, of a truth, he eschews logical deduction in favour of an Inner Mentor who provides him with a "hunch" to deal with almost every situation which arises in his life. Somehow, I do not think that either Euclid, Socrates, Newton or Kelvin would have approved of the Brownian technique of basing action on "hunches."

I have spoken to Brown about these things and along the lines of the foregoing. Truth compels me to admit that I did not have matters all my own way. There was, of course, that case two or three years back in which Brown's "hunch" at the local Point-to-Point did actually identify the winning horse and at an exceedingly paying price. And I cannot deny that some months ago he had a "hunch" for a certain share which then stood at pence and now stands at shillings. Nor can I deny that in one of the cricket matches in which we played together, his "hunch" to bowl his absurd "donkey drops" did lead the England batsman who was well set to attempt to drive him over the sight screen into the road and to be caught at third man off a mis-hit as a result. Of these incidents Brown made very considerable play. He also referred at some length to a memorandum I had compiled, in which memorandum I had reasoned logically from the known facts and had arrived at a definite conclusion: unfortunately, events entirely belied that conclusion. I did not think that Brown should have made so much of that little memorandum. Nor need he have mentioned quite so bitingly the present price of those shares I recommended him to buy: it seemed ungrateful in view of all the careful thought I had given to the prospects of the particular article with which those shares were concerned. And so, becoming nettled, and in an attempt to finish him off completely, I told him roundly that in this present Age of Science belief in "hunches" was just so much nonsense: to which he retorted by quoting Shakespeare's dictum to the effect that there are more things in heaven and earth than philosophy and science dream of, and added that among those things are "hunches." To which retort I made no reply, having the uneasy feeling that no adequate reply was possible: few wise people argue with Shakespeare.

My appeal to science was, maybe, an ill-judged one and opened the door wide for Brown's somewhat crushing rejoinder. Science has its limitations; it has a lot to learn; it is at its surest when it is dealing with the material universe; it is at its weakest when it attempts to deal with the non-material universe. No one has yet proved in any convincing way that the mind and the working of the mind are completely material. On the contrary there are many knowledgeable folk who hold that the mind and its working can only be explained by appeal to the non-material. Science has not, therefore, been very happy in its efforts to explain mental things, including "hunches." There may be much in "hunches," there may be little or nothing: science can give no definite answer. So much I must grant Brown, though grudgingly and with no affirmation of belief in the prophetic or utilitarian value of his particular "hunches." Derby Day, though, I shall doubtless be willing to suspend my definite disbelief in Brown's "hunches," at least for the nonce—a good win from the Derby is sweet whether accruing from scientific assessment or from a "hunch." After all, one never knows—which is one of the sagest of all sage remarks. I must not altogether neglect the "hunches" of Brown, for that would be to "cock-a-snook" at the gods, which is a foolish thing to do, a very foolish thing, unless, indeed, one's fingers are tightly crossed at the time.

# STATISTICAL REVIEW FOR AUGUST—SEPTEMBER, 1943

#### AUGUST.

#### NORTH EUROPEAN THEATRE.

August weather over Northern Europe was characterized by the frequent movement of low cloud and rain across land and sea and consistently good meteorological conditions did not materialize. Conditions did not remain good for more than two successive nights. Weather was very good on fourteen nights, but on eight other occasions good conditions at first deteriorated appreciably before dawn while the remaining nine nights were very variable or poor.

The effort of the R.A.F. and the R.C.A.F., R.A.A.F., R.N.Z.A.F. and Allied squadrons based in this country who flew with it and the U.S. Army 8th Air Force was developed during the month within these inevitable meteorological limitations, but the upward trend of the monthly aggregate of bomb tonnages was well maintained. The weight of bombs dropped by Bomber Command during the month on Germany and Italy exceeded 19,000 tons. Italy came in for more attention from our home-based bombers than in any previous month, more than 3,000 tons being discharged on the war industries in the North of the peninsula.

Bombing.—Bomber Command made nine major night attacks on Germany: Hamburg, Mannheim, Nuremberg (twice), Peenemunde, Rhineland, Berlin (twice) and Munchen-Gladbach; and eight on Italy: Milan (four), Turin (three) and Genoa. Minor raids, mainly by Mosquitoes, were also made on eighteen nights, on German targets; on six occasions major attacks were made at the same time. On seven nights this minor raiding took Mosquitoes to Berlin. Intruder operations and offensive patrols were carried out on twenty-four nights.

British medium, light and fighter-bombers were active in supplementing the day effort of the U.S. heavy and medium bomber squadrons. British day-raiding was carried out on twenty days.

Airfields were attacked on ten days and fourteen nights, individual transport targets on eighteen days and sixteen nights, and industrial objectives on five days. Some 200 trains were attacked during the month.

R.A.F., Dominion and Allied fighter squadrons supported and escorted most of the daylight bombing operations. Bombing formations were escorted on twenty-three days and sweeps were made on fourteen days.

U-Boats and Shipping.—Shipping targets at sea and craft on inland waterways were attacked on fifteen days and eleven nights, more than a hundred vessels of all descriptions being attacked. Naval stores at Rennes were also subjected to a sharp bombing attack on the 8th.

Coastal Command exceeded the record figure for sorties made during July. Antisubmarine patrols and reconnaissance were continuous throughout, and escort duties were performed on twenty-seven days. Fighter Command provided shipping protection on twenty-nine days and three nights.

Sea-mining was carried out by Bomber Command on sixteen nights.

ENEMY ACTION.—Enemy aircraft dropped bombs on this country on eight nights—none was dropped by day. Less than 200 enemy aircraft flew over this country both by day and night, the number by day not reaching a score.

#### MEDITERRANEAN THEATRE.

The Mediterranean Command, of which British, American and other Allied squadrons all form part, played a major part in the successful conclusion of the Sicilian operation and thereafter increased its pressure on Southern Italy, particularly its communications. More than 20,000 sorties were made by the N.W.A.A.F. during the month and from the Middle East and Malta consistent support was given.

Offensive operations were undertaken on every day and every night except one by N.W.A.A.F., on nine days and eleven nights by Middle East Command, and on

four days and thirty nights from Malta. Anti-shipping operations were carried out on fourteen days and twelve nights by N.W.A.A.F., on twenty-two days and fifteen nights from the Middle East, and on nine days and twenty-nine nights from Malta. Shipping protection was afforded by aircraft of N.W.A.A.F. on twenty-seven days and twenty-five nights, of the Middle East Command on thirty days and one night, and from Malta on twenty-eight days and twenty-three nights.

#### INDIA AND BURMA.

Offensive operations were carried out on every day of the month and five nights. Supply dropping was done on twenty-seven days of the month.

#### WEST AFRICA.

Aircraft from West Africa operated on every day, except one, on anti-submarine patrols, coastal reconnaissance and shipping escort duties.

#### AIRCRAFT CASUALTIES.

In offensive operations over Europe from home bases 136 enemy aircraft were destroyed. This total includes enemy aircraft destroyed during bombing raids. "intruder" operations, fighter sweeps and fighter escort activities.

Over Britain twenty-five enemy aircraft were destroyed, making a total of 161 destroyed during this period by home-based aircraft.

In the course of all these operations the R.A.F. lost 381 aircraft over Europe and none over this country.

The losses announced by the Middle East Command totalled thirty-nine as against the destruction of 159 Axis aircraft.

Allied Force Headquarters in North Africa announced the destruction during the month of 378 enemy aircraft for the loss of 190 Allied aircraft.

In India and Burma one Allied aircraft was lost.

#### SEPTEMBER.

#### NORTH EUROPEAN THEATRE.

Weather during September was unsettled. There was a run of eight successive nights early in the month when meteorological conditions at home operational bases were consistently good, and another spell of four good nights later, but very low cloud and fog caused more poor or bad nights during September than in any month since January of this year.

In spite of these difficulties aircraft of the R.A.F., R.C.A.F., R.A.A.F., R.N.Z.A.F. and Allied squadrons operating from this country with the U.S. Army 8th Air Force were over Germany and occupied territories on twenty-five nights and every day.

The weight of bombs dropped by Bomber Command was about 14,000 tons, more than two-thirds of the previous month's total.

During the amphibious Channel exercise on 9th September more than 2,000 fighter and 1,000 bomber sorties were flown.

OFFENSIVE.—Ten major attacks were made on targets in Germany and occupied territory: Berlin, Mannheim (twice), Munich, Boulogne, Montlucon, Modane, Hanover (twice) and Bochum. Other targets attacked included Oldenburg, Emden. Darmstadt, Aachen and Brunswick. Mosquitoes bombed Berlin and targets in the Ruhr and Rhineland.

Intruder operations and offensive patrols were carried out on twenty-one nights. Supplementing the day effort of the U.S. heavy and medium bombers, our medium.

light and fighter-bombers operated on twenty-nine days.

Airfields were attacked on thirteen days and twelve nights; individual transport targets on twenty-two days and thirteen nights; industrial objectives on four days and two nights. Over 130 trains were attacked.

R.A.F., Dominion and Allied fighter squadrons supported and escorted most of the daylight bombing operations. Bombing formations were escorted on twenty-one occasions and sweeps were made on seventeen days.

U-BOATS AND SHIPPING.—Attacks on shipping at sea and on inland waterways were made on twenty-two days and nine nights on 200 vessels of various kinds. Dock installations at Boulogne were attacked on two days.

Coastal Command operated every day as usual on reconnaissance and antisubmarine patrols. Escort duties were carried out on twenty-six days, and Fighter Command operated on shipping protection duties on twenty-seven days and one night.

Sea mining was carried out by Bomber Command on thirteen nights.

ENEMY Action.—Bombs were dropped on this country by enemy aircraft on nine nights; none was dropped by day. Fewer than 140 enemy aircraft operated over this country by day and night, the number by day being only twenty-five.

#### MEDITERRANEAN THEATRE.

Allied air forces shared with naval forces in providing cover for the landings on Salerno beaches and attacks on enemy troops and transport and other targets inland.

During the first four days of the landing, over 2,800 sorties were flown by Spitfires, Lightnings and Mustangs (in addition to those flown by naval aircraft) and over 1,000 daylight sorties by heavy and medium bombers. The North-West African Air Forces dropped over 15,000 tons of bombs on targets in Italy in September.

Offensive operations were carried out by the N.W.A.A.F. on twenty-nine days and twenty-seven nights; on fifteen days and twenty nights by Middle East Command, and on four nights from Malta. Anti-shipping operations were carried out by the N.W.A.A.F. on fifteen days and seven nights; by Middle East eighteen days and nine nights, and by Malta on two days and eight nights. Shipping protection was afforded by aircraft of N.W.A.A.F. every day and on twenty-six nights; by Middle East on twenty-eight days and one night and by Malta on twenty-three days and twenty-two nights.

#### INDIA AND BURMA.

Every day and on two nights offensive operations were carried out. Supplies were dropped on twenty-eight days. Shipping escorts were provided every day for the last fortnight. Bombers over Burma destroyed fifty-five engines and over two hundred railway wagons.

#### WEST AFRICA.

Sorties on anti-submarine patrol, reconnaissance or shipping escort duties took place every day.

#### AIRCRAFT CASUALTIES.

In offensive operations over Europe from home bases 173 enemy aircraft were destroyed. This total includes enemy aircraft destroyed during bombing raids, "intruder" operations, fighter sweeps and fighter-escort activities.

Over Britain seventeen enemy aircraft were destroyed, making a total of 190 destroyed during this period by home-based aircraft.

In the course of all these operations the R.A.F. lost 282 aircraft over Europe and none over this country.

The losses announced by the Middle East Command totalled twenty-three as against the destruction of sixty-nine Axis aircraft.

Allied Force Headquarters in North Africa announced the destruction during the month of 277 enemy aircraft for the loss of 101 Allied aircraft.

In India and Burma four Allied aircraft were lost, for the destruction of one enemy aircraft.

## AIR POWER IN SALERNO BRIDGEHEAD VICTORY

THE victory of the Salerno bridgehead provides yet another striking example of the use of concentrated air power in close conjunction with ground forces to stem an enemy advance and to prepare the way for the Army to push forward.

For a period of seventy-two hours the whole might of both the North-West African Strategic and Tactical Air Forces was hurled at the German troop positions and gun posts which commanded the Salerno beaches from the hills overlooking them and at vital road points just behind. This use of concentrated air bombardment turned the tide of battle, eased a serious situation and enabled the British and American troops to resume the offensive.

From the time of the landing early on 9th September the Tactical Air Force had been attacking these battle-area targets while our strategic bombers were pounding road and rail communications further afield.

But the British and American land forces were not able to make headway, they remained pinned to a coastal strip four miles or less in width and some twenty miles long.

It was on 14th September that the Strategic Air Force narrowed the arc of their bomber circle and ringed the Salerno bridgehead itself with medium and heavy bombs in the most concentrated attack made in any one region in one day during the operations in the North African theatre. Nearly 600 sorties were flown by the heavy and medium bombers alone, in addition to the U.S.A.A.F. and bombing and strafing by the Tactical Air Force in the same area. Fifteen separate formations went over during the day, an average of at least one an hour during daylight, and dropped thousands of bombs ranging from 10 lb. to 500 lb. in weight. The Strategic Air Force attack, in which B.17, B.26 and B.25 aircraft took part, was concentrated on roads, railways, troop concentrations and gun positions inland from Salerno. In the Eboli area the Fortresses plastered a narrow strip of road directly in front of our troops, dropping tons of bombs and covering the entire roadway and dispersal areas alongside it. A later wave of Fortresses hit heavy traffic and dispersed trucks and tanks in the same area. The road was carpeted with bombs.

Auletta and Avellino, important road junctions a few miles farther inland, also received a battering, and the Tactical Air Force, in addition to providing fighter cover over the beaches, added their share of bombs to the nearby communications.

It is a noteworthy point that hardly any enemy opposition was met on these devastating raids and not one of our aircraft was lost during the day. Only one formation of enemy aircraft was encountered by Mitchells, which attacked gun positions and railway yards near Eboli. About ten or twelve enemy fighters intercepted, and three of them were shot down by the bombers without loss.

Incidentally, this absence of the Luftwaffe, which was even commented on by captured German soldiers, was largely due to the earlier plastering of enemy airfields with high explosives, which destroyed the runways and landing areas, and fragmentation bombs which slashed up enemy aircraft.

The Salerno area was again bombed during the night, this time by Royal Air Force Wellingtons, so that the enemy had no chance to make repairs or bring up reinforcements and supplies during darkness, nor did his soldiers get any rest. Prisoners taken later were in an exhausted condition and told their captors that the continual bombing was more than flesh and blood could stand.

By half-past nine in the morning the first wave of Strategic Force bombers had taken over the task again and were dropping their first loads on the same targets as before. Fortresses, Maurauders and Mitchells again took part, and it was as late as ten minutes to eight when the last Fortress dropped its bombs in the evening. American Invaders of the Tactical Force started the day even earlier, for they were over the target as dawn broke.

During the day the Tactical Air Force flew more than 1,000 sorties, even Kitty bombers and Lightnings joining in.

Two days and the intervening night of this concentrated blitz was enough. The next day's army communique announced that our troops had taken the offensive and were pushing forward, so the Strategic Air Force once more widened its arc of destruction, returning to its normal role.

There have been occasions in the past when an overwhelming bomber force thrown into battle has turned the scales, but never in such a large and concentrated way. When Rommel turned on the American forces at the Kasserine Pass in February and started to push them back, threatening to break through the Pass and fan out to the rear of our central sector, air power played a great part in restoring the situation, and "tank-busting" Hurricanes, making a sudden appearance in southern Tunisia the same month saved a small Fighting French unit from almost certain destruction. When Montgomery delivered his famous left hook at El Hamma the way was cleared by the concentrated bombing of the Desert Air Force.

The most important occasion before this latest one at Salerno was when the Tactical Air Force flew 1,500 sorties before lunch on 6th May, blasting a strip measuring four miles by 1,000 yards at Marsicault to enable the Allies to break through to their final clean-up of Tunisia.

Allied ground and air forces are now so co-ordinated in this theatre that they are used by the supreme commander as though they were his right and left fist.

# ROYAL AIR FORCE MEDICAL SERVICES IN THE MEDITERRANEAN

Now that the campaign in Sicily is over details may be given of the part played by the medical services of the Royal Air Force, notably in the evacuation of casualties from the island by air and their subsequent transportation by the same means to base hospitals.

During the period from 6th July to 14th August a total of 14,898 patients, wounded or sick, were conveyed by air from Sicily to the North African mainland and from forward hospitals on the mainland to base hospitals in Egypt or Algeria. The arrangements for this movement were under the general direction of the R.A.F. Principal Medical Officer in North Africa, the organization being maintained by the united efforts of the R.A.F. and the medical service of the United States Army Air Force.

Some of the aircraft employed belonged to the R.A.F. and a number to the Americans, but in the work there was no discrimination on grounds of nationality, all the aircraft operating as one service.

The only air ambulances proper, and as such bearing the Red Cross markings, were those used by the British, Australian and South African air units, the work being carried on otherwise by transport machines, these being so fitted as to permit their adaptation to take stretchers in a matter of a few minutes. R.A.F. medical orderlies travelled on the air ambulances, while in a number of instances the R.A.F. also provided orderlies for the American transport machines employed. In a few cases, where the condition of patients made it expedient, R.A.F. medical officers flew with them. Air ambulances as such are not used by the American forces but they have a well-organized air evacuation service staffed with flight-surgeons and sisters who, in addition to being trained as nurses, have been air-line hostesses in peace.

Air Force mobile field hospitals, each equipped with an operating theatre, an X-ray section, and a small clinical laboratory, and having among their staff members of Princess Mary's Royal Air Force Nursing Service, had a dual role in Sicily. Like the Army's casualty clearing stations they provided emergency surgery and treatment in the field, while in addition they had the important task of holding, selecting and preparing cases

for evacuation by air. The selection of such cases is a matter of some moment and the experience of the R.A.F. medical service has proved exceedingly valuable in Sicily as in Tunisia, in ensuring that unsuitable cases were not subjected to the special trials involved in this form of transport and that the maximum use was made of the facilities available. In this the fact that the medical officers concerned were working with brother-officers of their own service and were themselves, naturally, possessed of considerable technical knowledge of aircraft and their operation, contributed largely to the smooth working of the enterprise.

Some of the medical officers engaged in the work are also pilots, and some even fly their own machines in supervising the evacuation and in carrying out, in effect, medical reconnaissance of the area to ensure that existing arrangements were functioning effectively and to provide for anticipated requirements. In preparation for the Sicilian campaign on one occasion a group of twenty-one R.A.F. nursing sisters was moved by air 500 miles forward to make them available for a new hospital in process of establishment in North Africa. Another example of the use of air transport as an aid to the medical service was given in the early stage of the operations in Sicily, when a section of an R.A.F. mobile field hospital, complete with staff and equipment, was flown to Sicily from the African coast.

While the general policy in the disposal of casualties reaching base areas was to admit them to any hospitals available, irrespective of the service to which they belonged, certain hospitals were provided solely for the Royal Air Force, primarily for flying personnel, the reason being that their treatment, rehabilitation and disposal call for the exercise of special knowledge and experience peculiar to their circumstances.

The work of the R.A.F. medical service in Sicily should be regarded as a continuation and a development of that done in the advance in North Africa, particularly in evacuation, when the air ambulance unit, comprising British, Australian and South African elements, gave valuable service in clearing casualties from the forward area, even in front of the line. Their work in this sphere called forth a special message of thanks from the A.D.M.S. of the 2nd New Zealand Division, which referred particularly to the No. 1 Royal Australian Air Force ambulance unit, and which stated that the total of 420 cases safely evacuated by air "from a position in close proximity to the enemy and virtually behind his lines, would appear to be the largest undertaking of its kind so far in this theatre of war," and said this must have saved many lives and spared the wounded much suffering.

Air transport of casualties has, of course, a considerable history in the R.A.F. In various territories, notably in Iraq, Palestine and India—where hospital facilities have been sparse and travelling difficult—it has been commonly employed since 1919. These were mainly cases of sickness, and cases requiring urgent treatment not available on their stations. In this war, however, substantial numbers have been involved for the first time in history.

In 1941 over 1,900 casualties were evacuated by air, mainly in the Western Desert. During 1942 the number handled in the Middle East rose to over 10,000, while this year to May over 7,000 cases were transported during the advance to Tunisia. When the battle was at its height, up to 200 a day were conveyed by air from the forward areas. In the Middle East campaign about 89 per cent. of the patients evacuated have been members of Army units, the remainder being R.A.F. or Allied Air Force personnel.

In the air evacuation scheme as at present organized a small and mobile "casualty air evacuation unit" is maintained by the Royal Air Force medical service at the airfield of departure. This is capable of holding thirty patients ready for emplaning as opportunity arises. This sub-unit is affiliated to a mobile field hospital about two miles distant, capable of accommodating forty to one hundred patients and of carrying out even major operations. This unit is charged with the duty of ensuring that patients are fit to be flown without serious inconvenience or suffering. At the bases a small reception station unit links the air evacuation chain with the general hospital system. Throughout its length the chain is an R.A.F. responsibility both in respect of treatment and transport.

A pleasing feature of the operations of the evacuation scheme in North Africa and Sicily has been the cordiality of the relations of the Royal Air Force and the United

States Army Air Force. The success achieved has been due largely to the happy co-operation of the medical staffs and others of the two bodies.

#### CASUALTY AIR EVACUATION IN ITALY

CASUALTIES removed from Italy by air constitute a high proportion of the total incurred in that theatre.

Several thousand sick and wounded men, mainly of the Army, have been evacuated from the Italian mainland since the first landings by the casualty air evacuation units of the Royal Air Force Medical Service, which thus continues the work initiated in the Western Desert, developed on the long road to Tunisia and brought to its present pitch of organized efficiency in Sicily.

The Americans are handled by their own air evacuation service. British casualties have come from all parts of the front, having been picked up by transport aircraft at as many as ten points on the Italian mainland, and flown thence to an intermediate base in Sicily. From this point the majority have subsequently been conveyed, again by air, to base hospitals in North Africa. In September, for example, some hundreds of cases were flown back to Sicily and in the same period nearly all these cases were moved back from Sicily to North Africa by air. The service came into operation within a week of the first landings.

In the development of this system now in being, the Desert Air Force has played the main part. Air evacuation of casualties is not new but it had never before in British experience been operated in circumstances such as prevailed in the Western Desert. Here the method was employed initially purely as Royal Air Force service by which the casualties of the force in the desert were cleared to base establishments in Egypt. Before long, however, as the great possibilities were recognized and exploited, it was extended and to a large extent integrated with Army medical units, although it was established at an early date that the organization and control of air evacuation of casualties should be the responsibility of the Royal Air Force Medical Service. In point of fact, on occasions when Army medical units have functioned as components in the system they have come under the direct control of the R.A.F. medical authorities.

In the early days much good work was done by air ambulances, designed and exclusively employed as such, but experience has shown that their role is strictly limited and the large-scale operations carried out have depended on using transport aircraft which have been taking stores forward and would otherwise be returning empty to base. It is this marriage of the air-transport system with the air-evacuation system which has made possible the evolution of the plan on the scale now existing. Originally transport aircraft were used as opportunity offered in a somewhat haphazard way, but before long it was decided that casualty evacuation must be regarded as an essential task and this traffic, from front to rear, has been given a very high degree of priority.

The first link in the air-evacuation chain of the R.A.F. is the casualty air-evacuation unit. In Sicily and again in Italy such units were established at all forward airfields as soon as they were occupied by the R.A.F. Thus no matter where a transport aircraft may land in the forward area, any available casualties are waiting ready to be despatched to base as soon as the forward load has been dealt with.

All transport aircraft are fitted so that they can be adapted to take stretchers in a few minutes. The humanitarian aspects of the speedy removal of sick and wounded men from the battle zone to base hospitals, where they can receive the finest specialist treatment, will be readily appreciated. It is perhaps less obvious that the air casualty evacuation scheme as it is now working effects great economies in transport by employing aircraft which would otherwise be flying empty and thus taking from other transport agencies a very heavy burden of traffic.

The gain in time is almost incredible: in one phase in the Western Desert, for example, casualties were flown out in about two hours from a position in almost impassable country from which they could not have been removed by road transport in under three days. In addition, patients benefit very greatly by the elimination of journeys over rough roads and broken ground while in critical condition.

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Many badly wounded men undoubtedly owe their lives to their removal from the front line area by air. This consideration applied particularly in the desert campaign and it may be recalled, as showing the large part played by air evacuation as organized by the Desert Air Force, that between the time of El Alamein and the fall of Tunis many thousands of cases were handled. Further, by using air transport in Tunisia it was possible to evacuate Eighth Army casualties westward towards Algiers on the first stage of their journey to the United Kingdom, the returning aircraft taking eastwards from the First Army area Indian casualties who were being evacuated towards Egypt.

At the intermediate base in Sicily casualties are received once more by R.A.F. medical units and sent in the first instance to Army hospitals where less serious cases are retained, while the bulk, as already indicated, are subsequently moved by the R.A.F. organization by air to the mainland of Africa. At the base airfields there the reception and dispersal of the casualties to the most appropriate treatment centres is again in the hands of the Royal Air Force Medical Service.

There is, however, the closest co-operation between the services at all points: the organization is necessarily highly flexible. For example, casualties are normally passed to the forward air-evacuation units of the R.A.F. by the Army's casualty clearing stations; at Foggia, however, the R.A.F. unit was in advance of the casualty clearing stations and Army casualties were therefore turned over to the R.A.F. organization by the main dressing stations of the Army field ambulances.

The great lesson learnt in the Western Desert was that the successful conduct of air evacuation of casualties on a large scale is conditioned by air superiority. In Sicily and Italy conditions have, of course, been generally favourable, and the evacuation machinery, systematized following the experience gained earlier, has worked smoothly and effectively although it can by no means be said to have reached finality. Great advances are still to be expected and the "trial and error" methods which have so far yielded such good results are being continued.

But a sound working method has been evolved. Army medical units, by far the main source of casualties for evacuation, are gaining experience in the selection and "conditioning" of cases for air transport and are positioning their units so that they dove-tail into the air evacuation plan; the forward R.A.F. air evacuation units are now integral parts of the medical organization of the forward R.A.F. wings; close liaison is maintained by the medical side with flying control (who govern the movements of aircraft in the forward zones) and with Transport Command formations who furnish the aircraft.

With the American forces the R.A.F. Medical Service has enjoyed the happiest relations in this as in other spheres. In the Western Desert two American groups were cared for by the R.A.F. Medical Service apart from their own limited unit resources, while following a visit by an American officer to the Desert Air Force it was agreed that all American transport aircraft should be fitted to take both the American and the British types of service stretcher.

## ADRIFT IN ATLANTIC FOR ELEVEN DAYS

For eleven days after they sank a U-boat in the Bay of Biscay, six survivors of a Coastal Command Halifax, which had been forced to "ditch" in the sea in flames, were adrift until their rescue by a British destroyer.

Their daily experiences throughout this ordeal were recorded in a diary kept by Group Captain Roger Mead, D.F.C., A.F.C., of Saffron Walden, Essex, the commanding officer of a Coastal Command Station, who was flying as second pilot of the Halifax.

Two of the air-crew were lost in the action—the wireless operator and the wirelessoperator/mechanic—and most of the other six were suffering from bruises, burns and exposure.

The Group Captain's diary, written in odd moments during the eleven days, is a testimony of stubborn determination shown by the Halifax crew, and all his fellow survivors pay tribute to his optimism and leadership, which helped them never to lose hope.

The attack on the U-boat came when the captain of the aircraft, Flying Officer Eric Hartley, of Oldham, had just taken over the controls from the Group Captain. The U-boat was surfacing about six miles away and the Halifax closed and attacked. The U-boat took evasive action, but when depth-charges were dropped the air-crew saw two of them straddle the target slightly aft the conning-tower.

Cannon-fire from the enemy, however, hit the Halifax's second starboard petrol tank, the starboard wing burst into flames and the fire spread to the fuselage and then to the port wing. The aircraft's rudder control was also put out of action-and it was decided to "ditch" the aircraft, which broke in two as it struck the water. In five minutes it sank.

Meanwhile, a black depth-charge plume rose from each side of the U-boat and the Halifax's mid-upper gunner saw its stern awash and its bows in the air. Then it slid backwards into the water and disappeared.

"As we hit the water there was a heavy shock which threw me forward right into the fire," said Group Captain Mead. "I hurt my head and was bruised all over. The captain did his job beautifully and the whole crew got out of the aircraft in most orderly fashion. Swimming towards the dinghy, I saw that our wireless operator was in difficulties. One of the other men was trying to get him into the dinghy but could not move him. I tried to do so but had to give up the attempt after swallowing a considerable quantity of water. We saw nothing of the wireless-operator/mechanic."

In hospital, Group Captain Mead, suffering from exposure and an injured hand, pieced together the rough notes of his diary as follows:—

First Day.—Decided to eat and drink nothing for two days. All badly shocked. I was knocked about a bit. First wireless-operator/air-gunner burned on the face. All seasick. But no one seriously hurt and all in pretty good condition. First night cold and wet.

Second Day.—Drizzle. Crew's condition excellent. All chirped up a lot and kept our heads, convinced we would be picked up.

Third Day.—Drizzle at first, but we dried our clothes when weather cleared up. Tried some fishing. Made lines out of some odd earth and aerial wires and fish-hooks with safety pins. No luck. Found some chocolate spoiled by water, ate half an ounce and two milk tablets each. Bad night. Cold, wet and very uncomfortable. Between us kept watch all night, guessing the hours. These nights were hell.

Fourth Day.—Issued one small piece of chewing-gum apiece, given back at lunchtime for bait. Again no fish. Two milk tablets each. Said morning and evening prayer. Another bad night—cold and wet, water slopping over into dinghy.

Fifth Day.—Nice, fine day. Clothes dry. Decided on one milk tablet each four times a day. Had my shoes and socks off when sea rose to real Atlantic swell and overturned us. Kept our emergency rations, but lost a lot of clothes. Difficult now to keep warm, especially feet, but all lucky to get back into dinghy. Thoroughly done

in and badly shocked after that. Special issue of barley sugar—one each—bucked us up. Sea rough all night. All wet and miserable. Dinghy waterlogged all the time. Kept baling out.

Sixth Day.—Poor weather, drizzle, caught rain-water with our hands and drank it. Weather improved in the afternoon. Sun-bathed, dried our clothes and "Mae Wests." Dinghy doing extremely well. Ration still four milk tablets a day. In the evening opened first tin of water, shared round carefully. Determined to have a comfortable night, but very cold and all stiff and miserable. At 2 a.m. saw a light on horizon. Fired a signal, then found it was Mars!

Seventh Day.—Warm. Dried everything out and bathed in the afternoon, one after the other. Frightened by a couple of whales, basking and bellowing 400 yards away. All wounds healing well. Had a discussion on what action to take. Now obvious searching aircraft unlikely to find us. Time we did something. Still trying hard to catch fish. Made fishing-net from half a mast and seat of old pair of pants. No fish, but at about 6 p.m. caught an unlimited number of jelly-fish, all sizes, and what looked like baby octupuses. Tried to make a drink out of them. Foul. Seemed to be mainly sea-water. Dubious stuff altogether. Kept it in case we got really thirsty. Night warm and dry. Sea calm.

Eighth Day.—Low cloud, turning to warm sun. Made and shipped a two-shirt sail. Most effective. Crew now breathing through sea-wetted handerchiefs and keeping hair and faces wet to reduce evaporation losses. Hope still high, but night bad. All getting tired easily. Most of the crew lying all the time on the floor. Sea grew rough but maintained good speed all night.

Ninth Day.—Very rough. Great strain on all. Shipped water continuously. Night an absolute nightmare. Very rough, raining hard. Afraid of being tipped into water any moment. Everything soaked.

Tenth Day.—Crew very tired. Special issue of chocolate—two small cubes each. Weather improved in the afternoon after three distinct storms. Night: no notes.

Eleventh Day.—Weather cleared midday. Divided one tin of water among us—two ounces each. A little chocolate. By then Group Captain Mead became too "dopey," as he said, to write or read his diary. But at 2.30 p.m. that day the survivors saw the mast of a destroyer and then found that there were two destroyers, one each side of them. They were too weak to realize that they were later being dragged aboard, and the next they knew was that they were wrapped in blankets and bound for home.

"We just drank and drank for the first day and night," said Flying Officer Hartley. "We couldn't absorb enough liquid. They gave us pints of lemonade, made from real lemons, and lemon tea. The sailors waited on us constantly, with every delicacy the cook could invent. The doctor hardly left us for a moment and lay all night beside one of our crew who had become slightly delirious in the dinghy. Now we are all O.K. and getting along fine. The last two days adrift were hard going, and only four of us were well enough to do the night watch. We'd hardly the strength to change places when our hour's duty was over. The destroyer came upon us by chance and when she did sight us she at first took us to be some Huns—our soaked uniforms looked so dark."

The names of the survivors of the crew are:—

Captain: Flying Officer Eric Leeming Hartley, Oldham, Lancs.

2nd Pilot: Group Captain Roger Clutton Mead, Saffron Walden, Essex.

Navigator: Flying Officer Thomas Eric Bach, Hurlingham, F.C.P., Argentine Republic.

Flight Engineer: Sergeant George Robert Robertson, London, S.E. 24.

1st W.O.P./A.G.: Flight Sergeant Kenneth Edward Ladds, Chislehurst, Kent.

3rd W.O.P./A.G.: Sergeant Arthur Stanley Fox, Heston, Middlesex.

# "FLEET AIR ARM"

(From the Admiralty Account of Naval Air Operations prepared by the Ministry of Information and published by H.M.S.O.; 1s. 6d. net. Reproduced by courtesy of The Controller, H.M.S.O.)

#### WHEN A SAILOR LEARNS TO FLY

THE new carriers which are coming into commission, and the increasing number of naval squadrons affoat and ashore, demand a corresponding increase in pilots, observers and telegraphist-air-gunners and in maintenance ratings to keep the aircraft flying.

The officers of the Fleet Air Arm are naval officers who specialize in flying, just as others specialize in submarines. Among them are executive officers of the Royal Navy, the Royal Naval Reserve and the Royal Naval Volunteer Reserve, although executive Reserve officers are no longer allowed to specialize as pilots. A number of officers from the Royal Marines take up flying duties, retaining their own ranks and uniforms. The Air, or (A), branch of the Royal Navy contains many officers who have previously held commissions in the Royal Air Force or had experience of civil flying.

Since the introduction of the Armed Forces Act, direct entry has almost invariably been through the Lower Deck. Prospective candidates join as Naval Airmen II, the pilots and observers normally being commissioned in the (A) branch of the R.N.V.R. on successful completion of training. On both arms these officers wear a small "A" within the loops of gold lace, and on the left arm only the pilot's or observer's wings. Thus the junior ranks of the Fleet Air Arm are to-day almost entirely filled by officers of the R.N.V.R. and the corresponding Dominion Services. The telegraphist-airgunner is a rating; he becomes a Leading Naval Airman on completion of training, and wears the T.A.G.'s badge on his arm.

"When a sailor learns to fly," wrote Sir Walter Raleigh in The War in the Air (1922), "he remains a sailor, and the air for him is merely the roof of the sea." This is still true of naval officers who specialize in flying, but to-day the majority of entries are young men, either straight from school or on the threshold of their careers, who have as little practical experience of the sea as they have of the sky, though some may have served in the Sea Cadet Corps or the Air Training Corps, many of whose squadrons are affiliated to naval air stations. They can join the Navy for flying duties through the "Y Scheme," under which Naval Selection Boards in various parts of the country recommend boys between the ages of 17 and 18 for training as pilots, observers and telegraphist-air-gunners.

Let us suppose that three school friends decide to apply for entry under this scheme—ordinary boys who have been to ordinary schools, where they have obtained the School Certificate. Let us call them Peters, Oliver and Green. They seize the opportunity which the Navy offers them of learning to fly and of going to sea at the same time.

Peters wants to be a pilot. He is alert, intelligent, with plenty of initiative. He is a hard-hitting batsman and a dashing three-quarter. He can drive a car and is fond of tinkering with its engine. He is a sound shot with a rifle.

Oliver is the cool, calculating type, who thinks well before he acts. He is the kind of steady batsman who can be relied upon to play the bowling when things have been going badly. His strong subject is maths. He has taken the trouble to find out the duties of a naval observer, and knows that they are no less important than the pilot's. He has learnt that the observer is responsible for the navigation of the aircraft, that during a reconnaissance he will act as the admiral's spy-glass and will be in charge of the aircraft during its bombing-run. All this attracts him, and he decides that he is better fitted to be an observer than a pilot.

Green is more of a plodder than either Peters or Oliver. Unlike them, he has never distinguished himself either at work or games and his maths. are weak. But he has been popular with both masters and boys because of his honesty and reliability. He

has no particular desire to be an officer but he does want to fight. He knows the high standard the Navy demands of its telegraphists and is prepared to learn. He determines to apply for entry as telegraphist-air-gunner.

The application forms are filled in and dispatched. The day comes when the three friends appear before the Selection Board. Peters is called in first. He is keyed up for the ordeal and tremendously excited, determined to do his best. As he is ushered into the room by a Wren he sees a long table at which are seated a Captain, R.N., an Instructor-Captain, and a Lieutenant who is wearing the pilot's badge. The President bids him good morning and asks him to sit down. He takes the chair opposite the President and awaits the attack.

He does not find the ordeal so terrifying as he had expected. It seems that the Board is not trying to bowl him out, but is sending down an over that will enable him to display his form. He answers the President's friendly queries about himself frankly and without trying to show off.

Then the Instructor-Captain takes a hand. By a few shrewd questions he is able to assess just how much trigonometry and maths. Peters really knows: no chance of stealing a quick run here. But the Instructor-Captain seems satisfied and then the President hands him a list of H.M. ships.

- "Just tell me what you think they were called after," he says. "Take this one-Kenya."
  - "A British colony in East Africa, sir."
  - "Right. And this one-Benbow?"
  - "A British admiral, sir."
- "Good," says the President. "We had someone in just now who said it was a public house."

After a few more questions to test Peters's history, geography, and general knowledge, the President pushes towards him some small ship models and asks him to identify them. Peters has a little trouble in distinguishing between a destroyer and a corvette, otherwise all goes well. The President then hands him over to the Fleet Air Arm representative.

Peters finds this young man more alarming than the senior officers. Why does he want to join the Navy? Why does he want to be a pilot? Does he know anything about motor-cars and their engines? What are the main types of naval aircraft? Can he identify them? Peters can, and does from the models on the table.

"What would you do if you were flying from London to Liverpool and your observer gave you a north-easterly course?" is the next question.

"I should tell him to think again, sir."

"I should hope so!"

Peters is then asked to withdraw. After a few apprehensive moments he is recalled.

"It's all right," the President tells him. "We've decided to recommend you to be trained as a pilot. You will be put on the unpaid Reserve and you'll get your papers as soon as you are eighteen. Meanwhile, we should like you to go on with your training in the Sea Cadet Corps, the Air Training Corps or the Home Guard."

Peters promises to do this and retires elated.

Oliver and Green follow. The Instructor-Captain goes more deeply into Oliver's mathematical qualifications and the Fleet Air Arm representative asks Green a number of questions about morse and the armament of naval aircraft. Both boys satisfy the Board and are recommended in their turn.

Later Peters and Oliver are directed to join at the Royal Naval Barracks, Lee-on-Solent, Green at H.M.S. Royal Arthur. The weeks that follow are a period of adjustment from civilian to naval life. They are not altogether easy weeks, but they are full of interest. First comes the excitement of kitting up with square rig (as the seaman's uniform is called), and learning to wear it as befits a Naval Airman. Then comes a course of disciplinary training to introduce the new entries to naval life and to accustom

them to handle weapons with confidence, interspersed with swimming, visits to the dockyard and to the hangars, and lectures on the history of naval flying by the former Commander of a famous carrier.

After a month's initial training they go to H.M.S. St. Vincent, another shore establishment, where they meet Green, who has been undergoing a similar course in H.M.S. Royal Arthur. They soon become sensible of the tradition by which the Navy, in its wisdom, sets such store. The establishment was built in 1777. It is a dignified red-brick building, solid and forthright, with gracious proportions and the beauty of age. Behind the wrought iron gates are a vast parade ground and a quarter-deck.

Peters, Oliver and Green are told off to the separate courses for pilots, observers and telegraphist-air-gunners. Green's course deals mainly with the principles of air gunnery and naval signalling. In Oliver's course the emphasis is on signals and navigation, since he will be required to take his aircraft across vast tracts of sea without a landmark to help him, back to a floating aerodrome which is but a speck upon the ocean. Ship recognition is an important part of the training of all three. By means of a box with two peep-holes the pupils can see a number of models, changed every day, at different angles and in varying lights. And since naval airmen are expected to be seamen too, they must learn to box the compass, to take bearings and to understand the action of the wheel, the rudder, and the ship's head; they are given an opportunity for practical boat work and have lectures on sea terms, ship routine, the functions of warships, and Service customs and ceremonies.

After two months' training Peters and Oliver pass out as Acting Leading Naval Airmen. Now their paths diverge. Peters goes to an R.A.F. station for his elementary flying training, Oliver to H.M.S. Excellent for his gunnery course, Green to a naval air gunnery school for instruction as a telegraphist.

When the Admiralty took over control of the Fleet Air Arm the Cabinet decided that the Royal Air Force should remain responsible for training naval pilots. Under a scheme recently inaugurated by Rear-Admiral John Towers, U.S.N., one of the pioneers of American naval flying, a number of British naval pilots receive their complete flying training in the United States at the great naval air stations of Gross Isle, Pensacola and Miami.

Some members of Peters's course go to the United States, others accompany him to a R.A.F. station which is devoted entirely to training paval pilots. A naval officer acts as liaison between the R.A.F. and the Navy, and gives lectures on naval subjects, but all the flying instruction is carried out by R.A.F. officers and sergeant pilots. It is the best that can be given, and the instructors feel an added responsibility for teaching the pilots of another Service.

Then Peters goes to Kingston, Ontario, for his service flying training. There he must make fresh adjustments: to climate, food, and the customs and speech of those about him. All this helps to widen his experience of life, and, besides the Canadians, he meets many other Dominion pilots, particularly New Zealanders, of whom increasing numbers are joining the Fleet Air Arm. At the end of a further period of training he passes out as a qualified pilot and returns to England as a Midshipman (A) R.N.V.R. Some of his friends return as Petty Officers; others, who have passed the age of 20, as Acting Sub-Lieutenants (A) R.N.V.R.

Since leaving H.M.S. St. Vincent, Peters has been under the wing of the R.A.F., and now, after a period of leave, he goes to the Royal Naval College, Greenwich, where he is reminded that he is not only a naval pilot but a naval officer. There, working, eating and sleeping in those noble buildings which were once a Royal palace, he learns to develop the officer-like qualities (or O.L.Q as the Navy tersely calls them) which the Selection Board perceived to be latent in him. The atmosphere is wholly naval, and he would be insensitive indeed if he could not respond to the dignity of those stone colonnades, those old grey buildings, each named after one of the men who brought the Navy to greatness, to the gilded naval crowns on gates and lanterns, and to the beauty of the vast Painted Hall, where he dines at long tables lighted by gleaming silver candelabra, in company with W.R.N.S. cadets, some of whom will soon be carrying out the duties of Staff Officers to the second-line squadrons of the Fleet Air Arm.

At Greenwich, Peters may meet his friend Oliver, now also a Midshipman (Al. R.N.V.R., but with observer's wings on his left sleeve. Over a beer in the Gun Room they compare experiences. Oliver, unlike Peters, has remained in Great Britain. After his gunnery course in H.M.S. Excellent (another stronghold of naval tradition) he was sent to a naval air station which was once a civil airport, and is now styled H.M.S. Raven. There he spent two months concentrating on visual signalling and wireless telegraphy. At the end of the course some of the pupils were sent to Trinidad (H.M.S. Goshawk) to complete their observer's training; Oliver and the remainder went to a station on the east coast of Scotland known as H.M.S. Condor, where his principal instruction was in reconnaissance and in navigation as a means to that end. Soot he went into the air on exercises in Swordfish and Walruses. He learnt to find his was about in the air without using landmarks, relying on his skill in plotting and are navigation. The early practices were over the land, but little by little he became accustomed to working over the sea, until he was familiar with its changing moods of wind and fog and cloud. He also had practical experience in ship recognition, and learnt to take air photographs, which were processed by specially trained Wrens.

At length Oliver became a qualified observer, a highly skilled navigator confident of bringing his pilot into visual contact with the enemy and capable of taking his aircraft back across the sea to his carrier, if need be in the dark; competent indeed to fulfil the postulates of the Fleet Air Arm parody:—

If you can keep your track when all about you Are losing theirs and setting "mag" for "true." If you can trust yourself when pilots doubt you And get back to the ship out of the blue; If you can keep control of your dividers And Bigsworth board and Gosport tube and pad, Or listen to the wireless and the pilot Talking in unison—and not go mad . . . If you can fill the unforgiving minute With sixty seconds' worth of ground-speed run, Yours is the Air—and everything that's in it, And—what is more—you'll be an "O," my son.

On leaving Greenwich, Oliver is ready to go to a working-up squadron, but Peters still has his specialist training to complete as a T.B.R. pilot. If he were a fighter-pilot he would go to the Naval Air Fighter School at H.M.S. Heron, in Somerset. There the course includes formation flying, cross-country and cloud flying, section attacks on other aircraft, spinning and aerobatics, forced-landing practice, dog-fighting, dummy deck-landing by day and night, radio telephony and air gunnery. By means of the cine-camera gun a pilot's marksmanship can be assessed with great accuracy; this work is done by Wrens on the station.

In H.M.S. Heron the instructors are naval pilots with recent operational experience, and the psychological effect of being taught by men whom the pupils can admire and trust is very great. Equally great is the responsibility these instructors bear, for the future of the Fleet Air Arm, and it may well be the safety of the Fleet itself, is in their hands.

The essentials of a good naval fighter-pilot are that he must be efficient in every phase of his job—interception, air-fighting, deck-landing and night flying, and since he will be flying single-seaters, he must learn to develop that extra sense of the fighter-pilot which enables him to find his way by instinct, aided by R/T and his instruments. He must also show his ability as an officer on the ground, and must have dash, a sense of responsibility, integrity and self-discipline, and confidence in himself. That he must have courage goes without saying; but, as General MacArthur has said, courage alone and the willingness to die is not enough, for he needs the best weapons that can be procured and the skill to use them.

Pilots who are not being trained to fly fighter or T.B.R. aircraft go on their return from Canada to a naval air station for seaplanes on the South coast. It was once the

adquarters of a motor-yacht club and is the most luxurious air station in the Navy. aving received their elementary training in flying Walruses and Kingfishers, they occeed to another station on the Welsh coast, where they carry out spot-landings on the water, landings alongside a ship, rough sea landings, and landings in the "slick"—the calm water left by a ship turning at speed in bad weather, which "irons out" the ta—and practise dropping bombs and depth-charges. They finish their training with spell on board the veteran H.M.S. Pegasus for catapult work and recovery.

The pilots and observers of amphibians or of light reconnaissance floatplanes carried battleships and cruisers are more closely identified with the life of the ship than new would be in a carrier, so that they must have a sound knowledge of naval routine and procedure. The pilot must also be able to handle his aircraft on the water as well in the air. On one occasion a Walrus got lost while on reconnaissance from a ruiser off Freetown. When the fuel gave out the pilot forced-landed on the sea. He and the observer hoisted a parachute between the upper and lower main planes and an before the wind for two days. An off-shore breeze made further progress towards and impossible, so they took to their rubber dinghy, sank the Walrus, and were ventually picked up by a native boat which took them to Freetown.

After completing his training the Walrus pilot goes to a pool unit on the east oast of Scotland, and while waiting to be posted to a ship carrying catapult aircraft the flies the observers under training in H.M.S. Condor, to which the seaplane station is a tender. The officers live in a requisitioned hotel, and the maintenance ratings' quarters are in an old factory, where they sling their hammocks and share the galleys, canteen and wash-rooms with the ratings of a submarine depot.

On leaving Greenwich, Peters steers a different course from his fighter and Walrus pilot friends and goes for his torpedo training to a naval air station, H.M.S. *Vackdaw*, not far from H.M.S. *Condor*, in the Firth of Forth.

When he was at Lee-on-Solent it may be that he noticed the following maxim printed on the wall of the Torpedo Office: "Their want of practice will make them unskilful, and their want of skill, timid. Maritime skill, like skill of other kinds, is not cultivated by the way, or at chance times." It was Thucydides who wrote that, two thousand years ago, but Peters is soon to find that its application is as true to-day, for in no branch of naval flying is more skill and practice required than in dropping torpedoes.

He begins his training by low flying over the sea, taking off and landing with a dummy torpedo, then practises aiming, going through the methods of attack without dropping. After he has been in the target ship to watch the instructors giving a demonstration he goes up in a sub-flight, led by an instructor, to drop dummies, then live torpedoes, or runners as they are called. The final stage is the squadron attack, when the sub-flight circle round the target ship above the clouds, dive steeply into position for the attack to within fifty feet of the sea, drop their "fish," and take avoiding action as they turn away, while the recorders in the target ship watch the track of the torpedoes, which have been set to pass underneath and aimed astern of the ship. The results of these attacks are analysed by Wrens.

Having completed his torpedo training Peters goes on to H.M.S. Peewit for a course in deck-landing, by day and by night. A stretch of the station run-way is marked out to represent a carrier's flight-deck—but is made much longer, since the dummy deck on the airfield is stationary whereas the carrier would be creating a wind by her forward speed—and is marked by hooded lights at night. The main object of the exercise, which is known as "circuits and bumps," is to teach the pilot the standard approach to land on a carrier in such a way that his hook will catch one of the arrester-wires stretched across the tarmac and, above all, to put complete confidence in the Deck-Landing Control Officer, on whom his life and the safety of his aircraft will depend once he is at sea.

The Deck-Landing Control Officer is known as "the Batsman"—from the implements with which he signals to the pilots. These are illuminated at night, and the incoming aircraft switches on three small lights to show its position and altitude. "Go slower"—"Go lower"—"A little to your right"—"Steady as you go," and finally,

as the bats are swept together, "Cut your engine." The pilot closes his throttle and if he has obeyed the signals he will not fail to make a correct landing.

When Peters has finished his deck-landing course he is a fully trained T.B.R. pio and is posted to a squadron, possibly one that is working up at H.M.S. Landrail, a air station on the west coast of Scotland. There, it may be, he meets Oliver again and also Green, who by this time is a fully-fledged telegraphist-air-gunner.

Green has had to work as hard as either of his friends. On leaving H.M.S. Si Vincent he went to one of the air stations which the Admiralty took over from the R.A.F., now called H.M.S. Kestrel. It is an attractive station, with neat paths and well kept flower-beds. There he found some 300 air-gunners in various stages of training some of whom, like himself, had joined through the "Y" Scheme, others from sea. They came from all walks of life and in his own course were a butcher's boy, a printer, ar insurance clerk, a racing motorist's mechanic, a house-decorator, a farmer, a policeman a bricklayer, a stable lad, a carpet salesman, a glassmaker, and a ripper in a paper mill

With these companions Green spent thirteen weeks in signals and wireless training then went to an air station on the Cornish coast, H.M.S. Vulture, for air-gunnery Having learnt the mechanics of naval aircraft armament and having fired on a ground range at a silhouette target of a Messerschmitt, he went into the air, first firing splashes in the sea, then carried out attacks on sleeve targets, cones of cloth 20 feed long streamed about 100 yards on a fine wire by a towing aircraft. When the exercise is over the sleeve is dropped on the ground and Wrens assess the number of hits Should the target fall outside the station a reward of five shillings is paid for its recovery, an inducement which keeps the small boys of the village on the alert.

As on most naval air stations, Wrens also undertake much of the maintenance of the guns, and there is a small station nearby, used as an emergency landing-ground, which is entirely staffed by Wrens of the Fleet Air Arm, under a Wren officer, with a V.A.D. When the training squadrons are firing on the sea ranges the Wrens assess the hits and report to headquarters by telephone. They are also in charge of the bombing ranges used by the working-up squadrons, marking and sighting the bombs dropped on the targets. The only man in this Amazonian community is the elderly driver of the crast tender (or "blood waggon"), which is too heavy for the girls to start. He lives ashore

Wrens play an important part, too, in the telegraphist-air-gunner's W/T training, as Green found when he returned to H.M.S. Kestrel for the second part of his course

After practice in handling the received and transmitter sets he was sent to a hut on the perimeter of the airfield, where he began communication with an external ground station, working independently, and later in an aircraft on the ground. At last he went into the air, and learnt to ignore the noise of the engine and the slip-stream: a matter of practice, just as in a factory, where old hands can talk easily when a newcomer can hear nothing. On reconnaissance exercises he learnt to send his signals in code, the pilot telling him the substance of the information to be passed. The Wren W/T operators received and corrected these signals, so that Green was able to check his work when he reached the ground.

The Navy demands of its telegraphist-air-gunners an extremely high standard in wireless telegraphy. On an extended search there may be only one aircraft to spot the enemy, so that everything may depend on the report of a single man. Carelessness is the unforgivable sin and the highest tribute a T.A.G. can receive is for the Training Commander to report him as "reliable."

When Green has passed out he may look forward to rising to Warrant or even Commissioned rank. In this war the air-gunners have a fine record. Here is one example of their calm courage. On Easter Sunday, 1942, one of H.M.S. Indomitable's Albacores was searching for the Japanese fleet in the Indian Ocean and was attacked by a Mitsubishi 96. The air gunner, a Yorkshireman, was hit in the arm but continued to fire his gun, then made his signal and got out his sighting reports. Having driven off the enemy aircraft he extracted the bullet from his arm with a screw-driver, put it in his pocket saying, "Must keep that as a souvenir," and then fainted from loss of blood while the observer was applying first-aid.

#### IN THE GREAT COMPANY OF THE NAVY

INCE the outbreak of War the Fleet Air Arm has increased in power like a rising ind: a wind that has swept all the seas of the world. Naval aircraft have ranged the ceans in search of raiders and U-boats; they have guarded the paths of seaborne trade; ney have protected the Fleet. They have attacked German and Italian warships—from attleships to submarines—under steam and in defended harbours, and have sunk more han half a million tons of merchant shipping. They were the first aircraft in history to ink a warship by dive-bombing, the first to sink a capital ship with torpedoes, and the rst to defeat air attack on a fleet by fighter defence.

Often they have been the first to report enemy forces at sea, and, by shadowing them nd crippling them with their torpedoes, have enabled the Admiral to bring them to ction. Flying from frozen airfields and desert landing-grounds, or from their carriers' lecks, they have caused untold damage to ports, airfields, factories and fortifications, ransport on road and rail. Under the cover of night they have sown mines in estuaries and harbours. They have marked the gunfire of the Fleet. They have lent their aid to expeditionary forces ashore. Their sphere of action has known no limits between Petsamo and the Falklands. They have flown the Pacific and the Indian oceans, and in destroying two Japanese bombers off Ceylon they struck their first blow against a third enemy.

Their numbers have not been great. For the first three years of the war their pilots had to fight an enemy who had greater speed and better guns. Skill and courage their crews have never lacked; and now that they are being given modern aircraft and powerful cannon the Axis will have even greater cause to fear them.

As the aircraft have changed, so have the men who fly them. In the beginning the pilots, observers, and telegraphist-air-gunners were drawn from the Royal Navy and the Royal Marines. Many of them gave their lives. Some are still flying; some have risen to higher commands; others are using their experience to train those who are to follow them. These new air crews are not seamen by profession. They are men who have left school or trade or office to "ride the skies in the service of the Fleet." They have come under naval discipline later in life than those whose ranks they fill, but when they embark in their carriers they are as highly trained; nor are they slow to accept the tradition and custom of the Service they have joined. Yet they have this difference; they are a cross-section of the British people who have come from a thousand walks of life to turn their hands to war.

They are at sea because they want to be at sea; they fly because they want to fly. But their outlook is different from that of the men who flew with the Fleet in the last war, when flying was more romantic than it is to-day. These young men tackle the work they have in hand more seriously, with grim determination. This does not mean that they are not light of heart; their nerves are such that, when they leave their cockpits after a dog-fight above the Fleet, they will light a cigarette with fingers that do not tremble. Some of them, who have already been through much, have learnt the shining certainty that they will never be afraid. But they have no illusions. They have the measure of the foe they fight. Once, war in the air was a tournament of chivalry. It is so no longer. It is not easy to feel chivalrous to an enemy who drops bombs upon the rescuers of his allies, who machine-guns sailors struggling in the sea.

They are the marines of the sky: airmen and seamen too; and although they are the hub of the carrier's life they are mindful not only of their maintenance ratings, but of all those others who help the air crews to fight: the Staff Officers who plan operations and direct the squadrons to the enemy; the paymasters and writers who provide them with stores and spares; the seamen who range the aircraft; the signalmen and wireless operators who receive their reports; the engineers and the stokers below decks; the cooks and stewards who have a hot meal ready for them when they land on after hours in the air; the gunners who put a barrage over the ship; and the Royal Marines who man part of the carrier's armament and play her into harbour when the battle is over.

"Let us show ourselves to be all of a company," Drake exhorted his men in the Golden Hind. This they do, yet at the same time they are a company within a company,

and share the intimacy of the air squadron to which they belong. They look to their leader as seamen look to the Bridge, and thus they form a fellowship born of danger shared

Such are the men upon whose quickness of brain and upon whose swiftness of action the safety of the Fleet, or of a convoy, may depend. Some of their names have been recorded in this book; for each there is a score of others with equal claims upon their country's gratitude. The decorations they have won are but part of the measure of their glory. If they remain here anonymous, their comrades will remember them. They would have it so. They are not given to speaking of themselves. The Navy has taught them modesty. During the ebb and flow of talk in Ward Rooms afloat and ashore will come a mention of this action or of that, but it is always of someone else they speak, someone who was "the finest pilot I ever knew," or "a wizard observer," or "the best air-gunner I ever had."

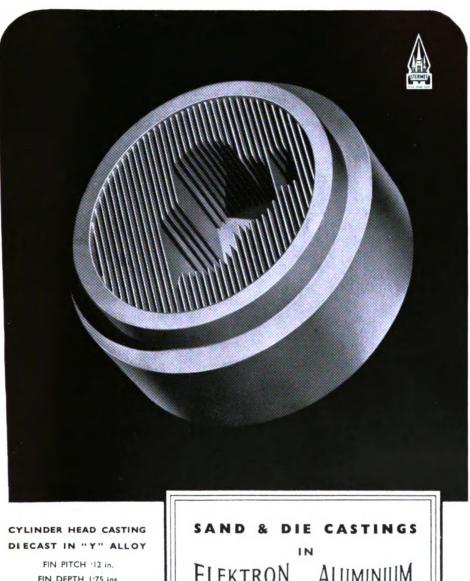
This brief account of their achievement is a tribute to those

Wide eyes that weary never,

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They are members of the youngest branch of the Royal Navy, which is very old and very wise. Those who led the way have shown what naval aircraft can do, and the future of the Navy in the air is safe in the hands of those who follow them. With new carriers, and at last new aircraft that they may indeed be proud to fly, they shall "ascend and come like a storm" and so pass from victory to victory.

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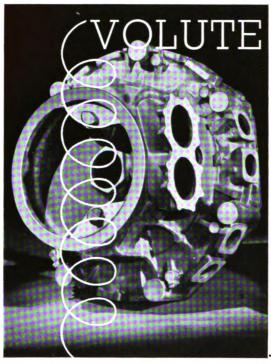
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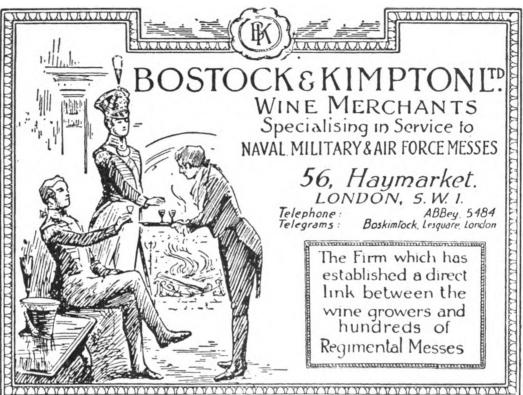
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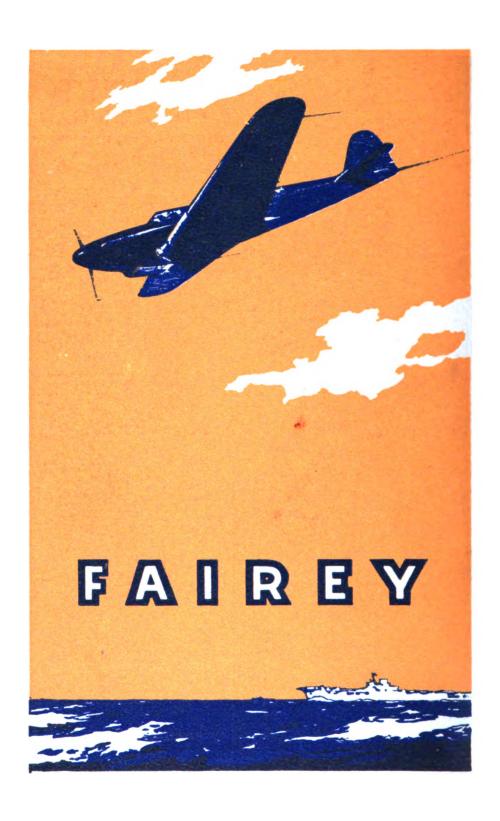


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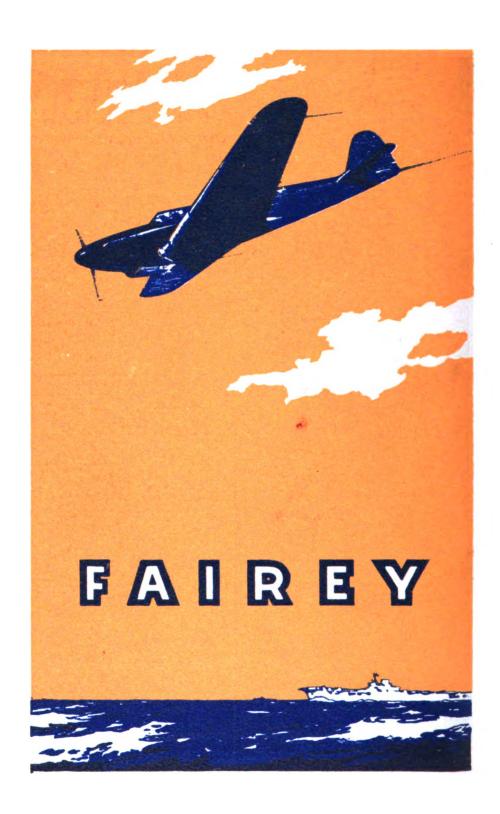
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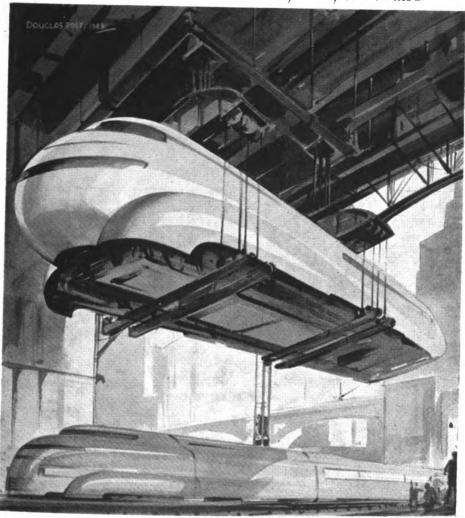
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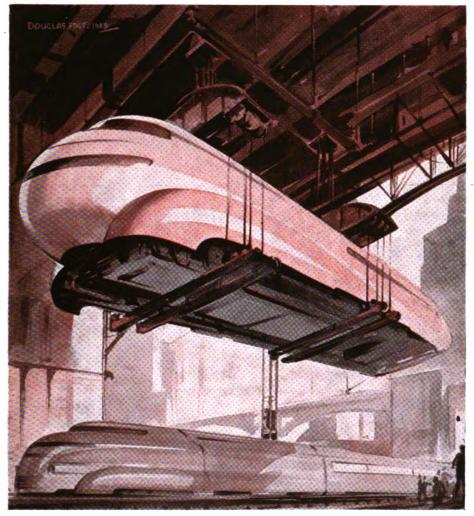
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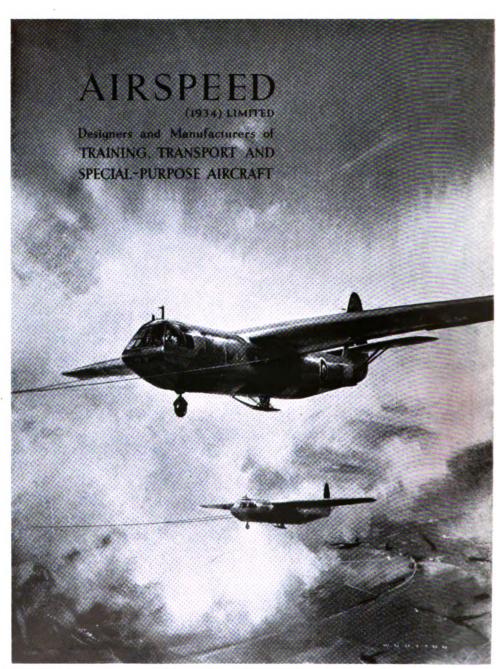


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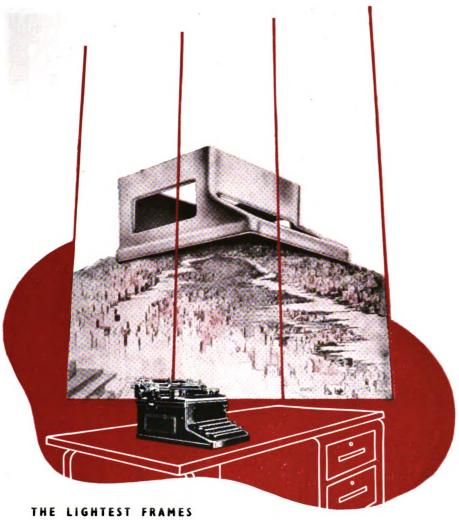


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Embodying also the Royal Australian Air Force, Royal Canadian Air Force, Royal New Zealand Air Force, and South African Air Force



#### EDITOR:

WING COMMANDER C. G. BURGE O.B.E., q.s., R.A.F.

Assisted by an Advisory Committee of R.A.F. Officers and the Liaison Officers of the Dominions

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## THE ROYAL AIR FORCE QUARTERLY

VOLUME XV MARCH, 1944 NUMBER 2

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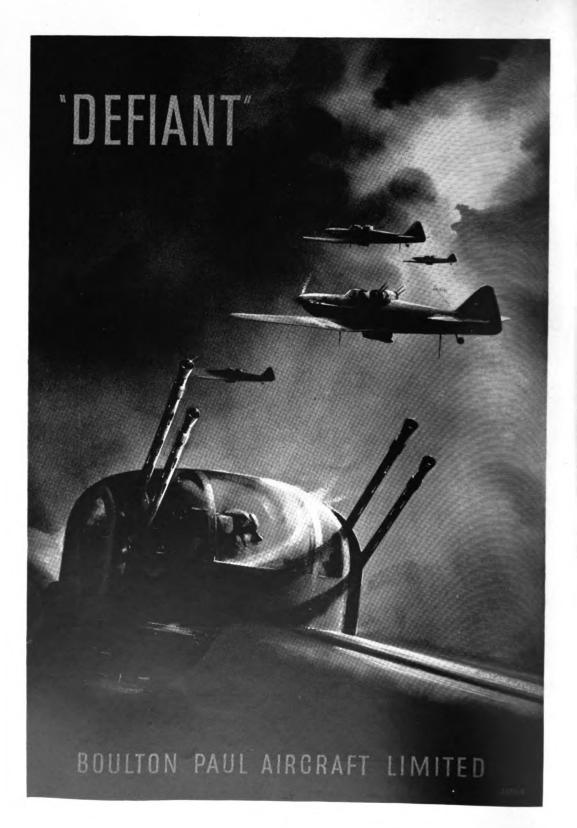
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#### AWARD OF THE V.C.

The King has been graciously pleased to confer the Victoria Cross on the undermentioned officer in recognition of most conspicuous bravery:—

ACTING FLIGHT LIEUTENANT WILLIAM REID, R.A.F.V.R.

On the night of 3rd November, 1943, Flight Lieutenant Reid was pilot and captain of a Lancaster aircraft detailed to attack Dusseldorf.

Shortly after crossing the Dutch coast the pilot's windscreen was shattered by fire from a Messerschmitt 110. Owing to a failure in the heating circuit, the rear gunner's hands were too cold for him to open fire immediately or to operate his microphone and so give warning of danger; but after a brief delay he managed to return the Messerschmitt's fire and it was driven off.

During the fight with the Messerschmitt, Flight Lieutenant Reid was wounded in the head, shoulders and hands. The elevator trimming tabs of the aircraft were damaged and it become difficult to control. The rear turret, too, was badly damaged and the communication system and compasses were put out of action. Flight Lieutenant Reid ascertained that his crew were unscathed and, saying nothing about his own injuries, he continued his mission.

Soon afterwards the Lancaster was attacked by a Focke Wulf 190. This time the enemy's fire raked the bomber from stem to stern. The rear gunner replied with his only serviceable gun, but the state of his turret made accurate aiming impossible. The navigator was killed and the wireless operator fatally injured. The mid-upper turret was hit and the oxygen system put out of action. Flight Lieutenant Reid was again wounded and the flight engineer, though hit in the forearm, supplied him with oxygen from a portable supply.

Flight Lieutenant Reid refused to be turned from his objective and Dusseldorf was reached some fifty minutes later. He had memorized his course to the target and had continued in such a normal manner that the bomb-aimer, who was cut off by the failure of the communication system, knew nothing of his captain's injuries or of the casualties to his comrades. Photographs show that, when the bombs were released, the aircraft was right over the centre of the target.

Steering by the pole star and the moon, Flight Lieutenant Reid then set course for home. He was growing weak from loss of blood. The emergency oxygen supply had given out. With the windscreen shattered the cold was intense. He lapsed into semi-consciousness. The flight engineer, with some help from the bomb-aimer, kept the Lancaster in the air despite heavy anti-aircraft fire over the Dutch coast.

The North Sea crossing was accomplished. An airfield was sighted. The captain revived, resumed control and made ready to land. Ground mist partially obscured the runway lights. The captain was also much bothered by blood from his head wound getting into his eyes, but he made a safe landing although one leg of the damaged undercarriage collapsed when the load came on.

Wounded in two attacks, without oxygen, suffering severely from cold, his navigator dead, his wireless operator fatally wounded, his aircraft crippled and defenceless. Flight Lieutenant Reid showed superb courage and leadership in penetrating a further 200 miles into enemy territory to attack one of the most strongly defended targets in Germany, every additional mile increasing the hazards of the long and perilous journey home. His tenacity and devotion to duty were beyond praise.

#### CANADIAN TRIBUTE TO SUSSEX HOSPITAL

As a permanent memorial to Canadian airmen who have given their lives on the world's battlefronts during the present war, a Canadian wing is to be built by the Dominion Government as part of the Plastic and Jaw Injuries Centre of a hospital in Sussex. where many Canadians suffering severe burns and disfiguring injuries have been restored to normal health.

Air Marshal Harold Edwards, C.B., Air Officer Commanding-in-Chief, R.C.A.F. Overseas, making this announcement, said that work on the new wing has already been begun by units of the Royal Canadian Engineers, who are to carry out its entire construction. Canada is providing the £18,000 which it will cost to build the wing.

For the duration of the war the wing will house a plastic surgery unit of the Royal Canadian Air Force Medical Branch, under a plastic surgeon from Toronto, and including other medical officers to act as assistant surgeons, surgeons and anæsthetists, in addition to nursing sisters, nursing orderlies, technicians, etc.

The Plastic Surgery and Jaw Injuries Centre was set up in 1939, as one of four Burn Centres, by the Ministry of Health. Almost from their inception, and especially during the Battle of Britain, these hospitals became centres of activity, as numerous cases of severe and extensive burns resulted from injuries in air combats, bomb explosions and, in particular, incendiary bombs during the "blitz." On the face, these burns caused blindness and gross disfigurement, as well as severe pain, while on hands and feet they could result in permanent crippling of the members. The plastic surgery technique, as applied at the Centre, has brought new hope to these burn victims. In a great number of cases a new set of features—eyelids, eyebrows, nose, jaw and lips—have been grafted on. Scarred hands, constricted by burned tissues, have been opened and rendered useful again. Burned feet have been similarly treated, so men who would have been crippled now walk normally and fly again.

Many cases of severe laceration produce the same effect as burns, and demand the same treatment. For example, one case now nearing completion was of a pilot, wounded by a cannon shell which drove longitudinally through his foot, entering at the heel and emerging at the joint of the big toe. At the first hospital where he was treated it was decided amputation of the foot was the only answer. He refused amputation and was sent to Sussex. The tissue around his heel has now been restored, and in a short while his foot will be normal except for the loss of his big toe.

These hospitals represent more than alleviation of pain to those who require these treatments—they mean the desire for life itself. A man whose face has been severely disfigured will usually develop a mental outlook which damages his life permanently. Another, whose fingers are constricted into claws, is practically helpless and unable to find useful work. The restoration of working units to the Service and the country is measurable in immediate results, but the saving in human suffering, not only for the victims but for their next-of-kin, is beyond comprehension.

A small unit of the R.C.A.F. Medical Branch has been working in conjunction with the present hospital for about two years. A great number of R.C.A.F. members requiring plastic surgery in varying degrees have already received highly successful treatment at the Centre. This unit will be greatly expanded on completion of the new Canadian wing.

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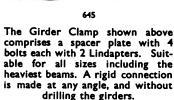


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#### BIGGIN HILL MEMORIAL TO FALLEN PILOTS

"In thankful remembrance of the pilots of this sector from Great Britain, the British Dominions and Allied Nations who by their sacrifice helped to win a great victory I unveil this memorial in their honour and to the glory of God."

With these words Group Captain A. G. Malan, D.S.O., D.F.C., Sector Commander, on 19th September, 1943, unveiled a reredos in a memorial chapel at Biggin Hill station of Fighter Command. It commemorates the dead and missing pilots of the Biggin Hill sector, whose number exceeds 200. Group Captain Malan was thus paying his own tribute to pilots, many of whom he led before, during and since the Battle of Britain.

As the cover fell away from the reredos the congregation stood in a minute's silence in tribute to the men who fell. Air Commodore the Rev. M. H. Edwards. O.B.E., Chaplain-in-Chief of the R.A.F., dedicated the reredos. It carries the names and squadron numbers of the fallen pilots. The Chaplain-in-Chief also dedicated the hand-made and hand-inscribed Book of Remembrance, each page of which recalls the name and squadron number of a pilot.

The memorial chapel, named the St. George's Chapel of Remembrance, is for the joint use of Church of England and Nonconformist personnel.

The suggestion for the memorial came from Squadron Leader Chesham King, the padre of Biggin Hill station. During part of the Battle of Britain he was also the Chaplain at Manston, Kent, and was personal friend and adviser to many of the pilots whose names are now on the memorial.

The pilots of the famous "few" came not only from Great Britain but from Canada, Australia, New Zealand, South Africa, America, Poland, France, Belgium. Czechoslovakia and Norway. The memorial therefore symbolises the unity of the free nations in sacrifice and their fellowship in remembrance.

Many of the Biggin Hill station personnel have helped to equip the chapel. Flying Officer W. Wylton Todd gave the original design for the memorial, an R.A.F. Regiment Squadron Leader designed the gold leaf decoration of the Book of Remembrance, and local affiliated squadrons of the A.T.C., who were represented at the ceremony subscribed for Chapel fittings.

#### R.A.F. BENEVOLENT FUND

The amount donated by the R.A.F. QUARTERLY to the above Fund for the quarter ended 1st March is given below.

R.A.F. Qu	ARTE	RLY donations	for	March,	1944,	Quarter		21	5	0
Brou	ght	forward	•••	•••	•••	•••	•••	521	5	0
				Grand	Tota	1		£542	10	0

### ROYAL AIR FORCE QUARTERLY PRIZE ESSAY COMPETITIONS

A PRIZE Fund has been opened with the sum of £15, donated by the Editor, for the purpose of holding at least one competition annually. It is hoped to hold the first competition in the current year, 1944, and a definite pronouncement on this will appear in the next number of the QUARTERLY, along with full details of the rules, etc., of the competitions. The Prize Fund in any year will not fall short of £60 and will, we hope, reach £100. There will be both monetary and other prizes in kind.





FORTRESSES ABOVE A SEA OF CLOUD.

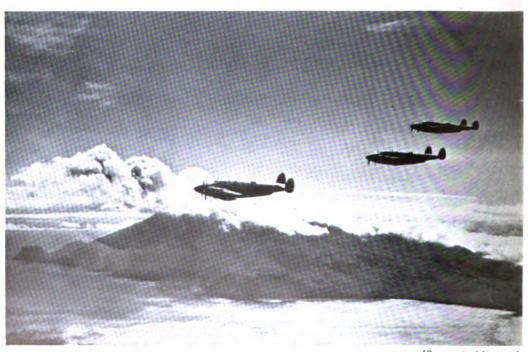
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FORTRESSES IN A PICTURESQUE SETTING OF SUN AND CLOUD WINGING THEIR WAY ACROSS THE 💆 NORTH SEA.



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U.S. VENTURAS SPEED PAST THE 4,000 FEET KISKA VOLCANO TO AID THE ALLIED FORCES' OCCUPATION OF THE ISLAND.

#### THE AIR WAR IN BURMA

LPA C.R.P. 7

THE story of the air war in Burma is very largely a story of unremitting toil on the part of the Royal Air Force and the American Army Air Force to achieve air superiority there in the face of tremendous odds against them after the Japanese occupation.

Japan's entry into the war came at a time when Britain was totally unprepared to defend the far-flung outposts of her Empire. Added to this difficulty in the case of Burma was the treachery of the Siamese, which enabled the Japanese to cross over from Thailand and to pour an overwhelming force into the "tail" of Burma. The garrison of Point Wellington was attacked first and was forced to withdraw in the face of vastly superior numbers on 13th December, 1941—only six days after Japan's attack on Pearl Harbour—and it was quickly realized that with Japan's mastery of the air, which she soon established, and with our land forces outnumbered, Burma was in dire peril.

Before long, Japanese troops were astride the Sittang River, and by 7th March Rangoon, capital of Burma, was evacuated by the British forces.

From the first onslaught the Royal Air Force attempted to impede the enemy's advance, strafing his positions and engaging his aircraft, and at the same time trying to beat off air attacks on Rangoon and other places. In these encounters the Japanese, in spite of their superior numbers, did not have things all their own way. For example, the Rangoon communiqué of 3rd March, 1942, said: "In raids over Rangoon on 26th February the enemy lost twenty-two aircraft; our losses were one aircraft. During raids over the period 25th/26th February total enemy losses were fifty-one to our two aircraft." Referring to this achievement in the House of Lords on the day after the issue of the communique, the Duke of Devonshire. Under-Secretary of State for India and Burma, said that up to and including those two days in February it was calculated that no fewer than 160 Japanese aircraft had been accounted for.

It has been calculated that the average percentage of Japanese aircraft destroyed in raids on Burma during the first three months of the campaign was about 25, but on occasions it exceeded 80 per cent.—a record not approached even during the Battle of

"The withdrawal from Rangoon," said the communiqué issued on 10th March, 1042, "was precipitated by the temporary isolation of part of our forces at Pegu and landing by the enemy on the north shore of the Bakir river and on the west bank of the Rangoon river. . . . Consequent on the landings it was decided to evacuate Rangoon

and carry on the fight in Central Burma alongside our Chinese allies.' With the advance of the Japanese a new task was put upon the Royal Air Force assistance to the refugees who made the long trek from Burma to Assam or Bengal to escape the invader. It was estimated that by the middle of July, 1942, no fewer than 500,000 Indian men, women and children—nearly half the Indian population of Burma had become refugees in India. Of that number nearly 400,000 made the journey by road, and but for the camps that were established at intervals along the routes vast numbers of them must inevitably have perished. For weeks the R.A.F. was busy dropping food, medical supplies and other commodities on selected spots. Supplies were also dropped to British and Indian troops. To do this the crews of heavy bomber and transport aircraft had to fly in extremely difficult conditions over the Naga Hills. Heavy thunderstorms and thick banks of cumulus clouds concealing the hill-tops made flying not only difficult but dangerous. To locate the spots selected for food dropping was never an easy task and in one case the supplies had to be dropped in a small clearing in the midst of dense jungle.

Meanwhile things continued to go badly for British arms. Mandalay had been savagely bombed on 3rd April and lay virtually in ruins, and on 29th April it was announced that Japanese troops had reached the suburb of New Lashio, terminus of the Burma Road, upon which China depended for so much of her war supplies. Mandalay was evacuated by our troops on 1st May, but the army remained intact and by 28th

May had completed its retreat to the Indian border.

In this first phase of the war in Burma the Hurricane fighters and the Blenheim bombers had proved themselves equal to the best the enemy could put into the air, but

there were too few of them. Too many of our aircraft of other types were inferior to the enemy's—Buffaloes and Mohawks, which, though efficient and manœuvrable against bombers, were thirty to forty miles an hour slower than the best Japanese fighters. Another serious obstacle was the lack of repair facilities. Often aircraft had to be flown back hundreds of miles for servicing and were out of action for ten days instead of one day: Japanese attacks on our airfields in those early months also considerably reduced our strength.

It would be improper to conclude this brief account of the first phase of the struggle in Burma without a reference to the American Volunteer Group of the Chinese Air Force, which, with the Chinese troops that came to the assistance of our forces in Burma in January, 1942, rendered invaluable service. Air Marshal Sir Richard Peirse, who had recently been appointed Air Officer Commanding-in-Chief in India, himself paid

tribute to their "magnificent work" in March, 1942.

The Indian Air Force, too, served with distinction and were so successful in their bombing and reconnaissance raids that they received a signal from General Wavell complimenting the pilots and crews. The force also received congratulations from the Air Officer Commanding in Burma.

TT

Following the disastrous opening stages of the war in Burma came a period of building up for the counter-offensive which General Wavell had confidently promised. "Some day," he said, after the withdrawal of the British and Indian forces, "we shall re-fight the Burma campaign—the other way round."

The army in Burma—and with it the Royal Air Force—had saved India from what might have been a very dangerous situation. The delaying action fought by General Alexander's forces had afforded time for the strengthening of India's defences and by the end of May, 1942, General Wavell was able to state that the air defences of two vital key-points—Calcutta and Ceylon—were stronger than had been those of Singapore

at any stage of the Malaya campaign.

Although the army had withdrawn, the Royal Air Force and the United States Army Air Force, operating from their bases in India, were unceasing in their work of harrying the Japanese in Burma. In May, 1942, the Allied air forces carried out no fewer than sixty raids on Japanese-occupied areas, the docks at Rangoon being the target for the U.S.A.A.F. on five occasions and Akyab and its airfield being attacked by the R.A.F. on fifteen.

Not only were more and more aircraft arriving in a steady flow at their Indian bases, but the early deficiency was made good by the sending of better types. Wellington bombers, for example, were referred to in the *communiqués* of the autumn of 1942, and by December, 1942, we were reading of as many as ten squadrons of fighters being engaged in low-level attacks on Japanese sea and river shipping, a task which had by then become a speciality of these fighters operating from airfields in India.

Akyab, the Japanese supply port on the west coast of Burma, became one of the chief targets of the R.A.F., and its repeated battering was a sign of growing air strength, which, by the end of the year, was estimated at 600 aircraft, not counting those

of the U.S.A.A.F.

Nor were the Japanese long in discovering, to their cost, that our aircraft were manned by pilots and aircrews who had seen exacting service in other theatres of war. Opposed to them in their first attacks on Calcutta in December, 1942, they found fighter-pilots who had shot the Luftwaffe out of the English skies in the Battle of Britain If the Japanese had hoped to repeat at Calcutta what they had done at Rangoon and Mandalay they were quickly disillusioned. No longer did they possess the superiority in the air which they had enjoyed at the beginning, and from their point of view the attacks on Calcutta had to be written down as a costly failure.

Towards the end of 1942 British forces began an infiltration into the coastal zone of western Burma, and in these operations, which have since developed along what is now referred to as the Arakan front, the R.A.F. has continued to give close support.

The growing strength of the British and American air forces had by this time made

it possible to keep up an almost constant attack on enemy airfields, with such good results that the Japanese frequently had to quit while repairs were being effected.

Most aerodromes in Burma are laid out on ground that was previously rice fields, and the work of keeping them serviceable, and especially of draining them, in the face of constant attacks, must have been tremendous, as R.A.F. pilots and crews who operated from them before the withdrawal from Burma can testify.

A great difficulty which faced pilots in the early months of the campaign was the fact that the difficult terrain over which they had to fly was known to few airmen before the war with Japan began. Those who knew it in pre-war days were the pioneers of air survey and they flew over a vast area around the Irrawaddy delta and over the Tenasserim forests to map the country by means of photographs. Within a comparatively short time 15,000 square miles of forest and 1,400 square miles of the delta had been photographed. The survey included Rangoon and the oilfields at Yenangyaung, and a debt of gratitude is owed to the pioneers of air survey, Mr. R. C. Kemp and Mr. F. P. Raynham, for the air maps of Burma which they compiled.

With greater strength available, and more confident knowledge of the difficulties of the country, the R.A.F. was able to begin night bombing in November, 1942, and its first night target was shipping in the already much battered port of Akyab. In December the R.A.F. kept up for three hours a night attack on the airfield at Heho, in Central Burma, dropping several tons of high explosive and inflicting considerable damage.

Targets further afield were the oil refineries at Bangkok.

Another development of the air war was the attacking of river transport, which has now become a matter of routine. The main life-line for the Japanese supplies in Burma is the 900-mile-long Irrawaddy river and its tributary, the Chindwin. So shallow are these rivers in parts that paddle steamers must be used. Some of these run to 300 feet in length. Also in continuous use are sampans up to 50 feet in length, generally towed by a motor vessel. The R.A.F. has found that the most effective means of attacking these supply vessels is by fighters. Concentrated bursts from cannon or machine guns can generally be relied upon to sink these lighter river-craft, and the success of these operations has been considerable.

The year 1942 closed with vastly more hopeful prospects than those with which it opened, and the Air Ministry's statistical review for December was able to say that "The advance into Burma completes the story of the Allied change-over from the

defensive to the offensive on all fronts."

#### III

If the land operations did not achieve all that had been hoped they definitely marked a turning-point in our fortunes in this theatre of war, and in the air the prospects were

even brighter.

Writing from Delhi on 7th March, 1943 the Times Special Correspondent said: "There is increasing evidence of air superiority being established over the Japanese in Burma. Whenever the enemy ventures out in force he is shot out of the sky and apparently there is nothing he can do to prevent the growing weight of attacks on his communications."

The Secretary of State for Air, in his Air Estimates speech on 11th March, spoke of the Air Force in India having been greatly reinforced and mentioned that Field Marshal Wavell had described the support given by the R.A.F. to the Army as "both

close and good."

R.A.F. Liberators made their appearance over Burma early in 1943, dropping 1,000-lb. bombs on Rangoon docks and sidings in February and later attacking Prome and the Japanese base aerodrome at Toungoo, in Central Burma. On 22nd March there was a spectacular attack with high explosive and incendiary bombs by a strong formation of Blenheims on an important Japanese transit camp at Prome. The fires caused by this attack were described by crews who took part as "the largest ever seen on the Burma front." On the same day dispersal areas at Magwe aerodrome were bombed by Hudson aircraft, mentioned for the first time in the communiqué of that day.

By the end of March, 1943, the R.A.F. was able to announce that it had made the record number of 200 attacks on the Japanese during the month. In addition, the

tonnage of bombs dropped by the Americans was 80 per cent. greater than in February, and Major-General Clayton Bissell, commanding the 10th U.S.A.A.F., in reviewing the progress made, stated that the bombing attacks of the two air forces had rendered Japanese rail and road movements in Northern Burma almost impossible by day.

Of the R.A.F.'s 200 attacks no fewer than eighty-two were made on enemy positions by the squadrons engaged in supporting the troops operating against the Japanese in

the Arakan district.

In fact, to quote the Air Ministry's statistical review, the R.A.F. on the India-Burma front carried out sorties every day in March and on twenty-two nights, and between

4th and 6th March dropped twenty tons of supplies to our forward troops.

In the India communiqué of 30th April, Beaufighters were mentioned for the first time and were reported to have attacked an engine and eight trucks along the Irrawaddy and to have damaged four river steamers and some smaller craft.

#### THE WINGATE EXPEDITION

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muniqué received in London on 21st May.

"An operation which has lasted for more than three months," said the communiqué, "has now been completed by a force comprising British, Burman, Gurkha and Indian troops. This force has campaigned in the heart of Central Burma since mid-February in enemy-controlled territory east of the Chindwin and Irrawaddy rivers." The communiqué went on to describe how the force, under the command of Brigadier O. C. Wingate, D.S.O., marched through the jungle from Assam to the west bank of the Chindwin river, and on 16th February crossed into enemy-controlled territory. It had no supply lines and depended on what it could carry with it, on wireless communication, and on supplies dropped at intervals by the R.A.F.

Breaking up into columns these troops proceeded by forced marches eastward by jungle tracks and over mountain ranges. Certain columns penetrated over 200 miles into Burma. Early in March they put out of action the railway running from Mandalay through Katha to Myitkyina. Demolition charges destroyed the track and bridges in seventy-five places and rendered further operation of this vital line of communication

impossible for many months.

Other exploits by the expedition were mentioned in the communiqué, which, after referring to the fact that supply dropping was continuously and daringly carried out by the R.A.F., remarked that the completion of the enterprise had provided unique experi-

ence of land and air co-operation in long-range jungle penetration.

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A different and more dangerous job was the picking up from a jungle clearing of twenty sick and wounded men by a transport aircraft, which a few hours later landed them

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American heavy bombers operated with great success over a variety of targets and it was not until 4th June that they suffered their first casualty at the hands of the enemy, when one of their aircraft failed to return from a daylight attack on the docks and

shipping at Rangoon.

The force rapidly expanded and became the 10th American Army Air Force under Major-General Clayton Bissell, who, at his first Press conference at Delhi on 9th October, 1942, said that the American and British air forces and the British Army were working

together as a single team with a single purpose.

Rangoon has been one of the principal targets for American bombers and as the result of the persistent attacks that were made on their shipping the Japanese soon found their use of the port very considerably restricted and ultimately practically denied to them.

Like the effort of the R.A.F., the American effort increased in scope and intensity in 1943, and in May of last year the 10th U.S.A.A.F. made nearly 1,000 offensive sweeps over Burma and flew as far as Bangkok in Siam, thus setting up what is believed to be their record for long-distance operational flying. Another record was set up by a Mitchell medium bomber which flew from its base in Eastern India to the Yunnan border, bombed its target there and returned. The distance covered was 1,500 miles—the longest operational flight made by a medium bomber in any theatre of war.

Among the most important and successful of American bombing operations were those against the railway bridge over the Irrawaddy at Mytinge, south of Mandalay. These attacks began in January, 1943, when the bridge was so severely damaged that its usefulness to the Japanese was considerably restricted. The attacks were continued with great pertinacity and by July the bridge had suffered to such an extent that it was estimated it would be closed to traffic for a very long time. By their successful bombing operations the Americans had for the time being broken the Burma railway system into two parts.

The Japanese effort to link Burma by railway with Bangkok also received constant attention from the American airmen, who not only disrupted new portions of track whenever opportunity arose, but bombed the huts in which the railway workers were

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In addition to the bombing raids made by them, valuable work has been done by the Americans by routine reconnaissances over the roads and rivers of Burma. In this way a constant watch has been kept on the enemy, effects of previous bombing raids

have been observed, and new targets have been reconnoitred.

American fighters have achieved notable successes in the difficult mountainous regions of northern Burma. Between October, 1942, and March, 1943, one fighter group of the 10th U.S.A.A.F., operating from stations in Assam, made well over 500 sorties against the Japanese with the loss of only one pilot and two aircraft. These fighter squadrons are equipped with the famous P.40's, which have been proved to be definitely superior to the Japanese Zeros.

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tonnage of bombs dropped by the Americans was 80 per cent. greater than in February, and Major-General Clayton Bissell, commanding the 10th U.S.A.A.F., in reviewing the progress made, stated that the bombing attacks of the two air forces had rendered Japanese rail and road movements in Northern Burma almost impossible by day.

Of the R.A.F.'s 200 attacks no fewer than eighty-two were made on enemy positions by the squadrons engaged in supporting the troops operating against the Japanese in

the Arakan district.

In fact, to quote the Air Ministry's statistical review, the R.A.F. on the India-Burma front carried out sorties every day in March and on twenty-two nights, and between 4th and 6th March dropped twenty tons of supplies to our forward troops.

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Group, and one borrowed from the Chinese. There was only one airfield at his disposal, with no wireless, and he had the monsoon and mountains to contend with. Nevertheless he organized the removal by air from Burma of 700 British and Indian wounded soldiers and 4,000 civilian refugees. General Haynes personally piloted the aircraft which rescued twenty-nine officers from General Stilwell's headquarters.

The 10th U.S.A.A.F., the command of which Brigadier-General Howard C. Davidson took over from General Bissell in August, ceased to be known by that name after 19th December, 1943, when Lord Louis Mountbatten, who had recently taken up his post as Supreme Allied Commander, South-East Asia Command, published an order uniting all combat units of the R.A.F. and U.S.A.A.F. in the command into a single Allied

air force.

V

Enough has been said to indicate that by the summer of 1943 the Japanese in Burma

were faced with very considerable opposition from the air.

In a heartening speech which he made at a Royal Air Force parade held at Irwin Stadium, New Delhi, on 15th September to commemorate the Battle of Britain, Air Chief Marshal Sir Richard Peirse said that since March, 1942, when a handful of Royal Air Force, disorganized, without aircraft or spare parts, or the wherewithal for making war, found themselves facing a very active enemy threatening India from Burma, a very large air force had been built up in India. The face of India had been covered with airfields, great training establishments, and an enormous organization for maintenance, repairs, and salvage. Air routes had been built up in the north, south, east and west, and supplied with their communications and meteorological services and all things essential to the movement of aircraft about a great continent. To-day they stood in battle array, not only ready to meet the enemy but to go out and find him.

Japan, he reminded them, had not felt the concentrated might of the United Nations. That was coming to them. "The campaigning season is about to begin; let us go to

it," were the Air Chief Marshal's closing words.

Among the more outstanding developments during 1943 was the introduction of Vengeance dive-bombers, which were mentioned for the first time in a communiqué dated 8th July, though they had actually been in use, and without loss, for several months. Their introduction was of special interest in as much as this was the first theatre of war in which the R.A.F. had used a real dive-bomber. For nearly a year they have been used in support of our troops in the Arakan district. Air superiority and a cover of fighters have provided the conditions most favourable for dive-bombing, and the machine-gun attacks with which they have invariably followed up their assaults on Japanese positions have made things very uncomfortable for the enemy. Targets among the jungle-clad mountain ranges of Burma have been found eminently suitable for dive-bombers and increasing use has been made of these Vengeances. An Air Ministry bulletin issued in November referred to their dropping 60,000 lb. of bombs in three days.

Attacks on inland water transport grew in strength and frequency, and in July no fewer than 650 river-craft were damaged. "Train busting" by Beaufighters has been carried on with the same regularity as it is carried on in Europe, and in six months

more than sixty locomotives were put out of action.

From time to time the Japanese have endeavoured to hit back at India, and in October Madras had its first air raid. The fact that this was India's first raid of the year, and that it was made by only one aircraft, was an indication of the enemy's waning

air power.

As in the war in Europe the Allied air forces had gained a definite ascendancy over the Luftwaffe, so in the Indian theatre they had proved their superiority over the Japanese, and by the autumn of last year the time was ripe for the launching of those wider operations which were envisaged by the appointment of Lord Louis Mountbatten as Supreme Allied Commander of the newly created South-East Asia Command.

This appointment was announced on 25th August, when the purpose of the new command was stated to be the conduct of operations based on India and Ceylon against Japan. Lord Louis came to his new duties with a brilliant reputation as Chief of Combined Operations and he began work at his headquarters in Delhi in October after having had conversations with General Chiang Kai-shek in Chungking.

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One of his first acts was, as has already been stated, to unite all combat units of the R.A.F. and the United States Army Air Force in his command into a single Allied air force. Air Chief Marshal Sir Richard Peirse was appointed Air Office Commanding-in-Chief, South-East Asia Command, and what is now known as the Eastern Air Command was formed by the integration of the combat units of the 10th U.S.A.A.F. and the R.A.F. Bengal Command into one force under Major-General George E. Stratemeyer, of the U.S.A.A.F., who was also appointed second-in-command to Sir Richard Peirse. The Eastern Air Command is now composed of a Tactical Air Force under the operational control of Air Marshal Sir John Baldwin, who was commander of the Bengal Air Command, and a Strategical Air Force under the operational control of Brigadier-General Howard C. Davidson, who commanded the 10th U.S.A.A.F.

Both forces appear to have got thoroughly into their stride and the Tactical Air Force is giving invaluable service to the 14th Army in its difficult task on the Arakan front, where the Japanese are resisting stubbornly. At the time of writing, the Arakan operations had resolved themselves very largely into a struggle for the command of the motor road from Maungdaw to Buthidaung, two townships that are the key to river transport in this district. The communiqués have repeatedly referred to R.A.F. escorted dive-bombers attacking enemy positions in the Buthidaung area, and there has been some evidence of increased air opposition by the Japanese, who have been sending up larger

numbers of interceptors.

Although they have not, up to the time of writing, been mentioned in the official communiqués, Spitfires have been operating from Eastern India for some time and have exacted a heavy toll of the Japanese bombers and fighters. It has been disclosed that it was a squadron of Spitfires to which Mr. Churchill and Sir Archibald Sinclair both sent congratulatory messages on the occasion of their intercepting about thirty Japanese aircraft on 31st December, destroying thirteen of them for certain and probably destroying several others. Another recent disclosure is that Mosquitoes are now operating against the Japanese in Burma.

The Strategical Air Force has also been doing fine work and one of its most notable operations was the dropping of more than 130 tons of bombs on the extensive oil installations at Yenangyaung in January.

Space forbids the enumeration of the many air operations that have been carried out so far this year by the Eastern Air Command, but an examination of the detailed communiqués issued from Lord Louis Mountbatten's headquarters gives the impression that both strategically and tactically the pattern being followed is very similar to that with which we have grown familiar in Europe. Our losses in the recent fighting have been light: in January we lost only seventeen aircraft against the twenty-six lost by the Japanese, and from the beginning of the campaign until the end of January our losses in air combat were 186 as compared with 825 lost by the enemy.

C. R. P.



#### AN AVENGER CREW'S ADVENTURES

[This is a report of a crash landing, twelve days ashore on a Solomons Island, rescue by the natives and return to Guadalcanal, as told by an Avenger pilot and his crew member to their Intelligence Officer. The original form of the narrative has been preserved.]

Just then, at about 2330, we went into a cloud. It took me unawares as I was looking at the coast. I switched over to instruments, and tried to let down away from land but at 800 feet the altimeter unwound like a clock, and we started to lose altitude rapidly. The red light flashed on the altimeter and my head went between my knees—a red glow flashed in my head and I was "koed." It is likely I had vertiga or something like that. I remember fumbling with my safety belt and then bobbing up to the surface of the water half dazed. I saw Stranahan and my chute floating nearby. No aircraft or wreckage was visible, and neither of us knew how we got out of it. We must have hit the water in a spin, because later Stranahan said that he thought we were spinning and hit on a wing tip. To the last I remember pulling back on the stick trying to stop the fall.

#### SWIM TO LAND.

We saw no land as it was black and cloudy. After fifteen minutes or so we saw land. I could hardly see as my right eye was swollen shut, and my mouth tasted like I was chewing a hamburger. We decided to swim hand in hand in order to stay together. My left shoulder was very painful (later found to be a broken collar-bone), and I also discovered a gash under my right elbow. Stranahan had also received a bad cut on the left leg, but he didn't discover it until he reached shore. I finally let the parachute go, as it slowed me down. We would swim breast stroke for a while, and then turn over on our backs. Every time we did this I could see a few more stars and realized that we were drifting up the Gut away from land. So we would try to swim again. We were unable to swim and hold hands so we drifted apart after about four hours, but we kept calling out to each other for awhile. I swam and floated, and swam once more. My wounds didn't hurt so much, but the salt water made my eyes and mouth swell more. It was getting lighter and I could see that I was getting closer to land. Although I was drifting rapidly to my left, I was heading approximately north. I remember thinking that if I could only reach shore, someone might find me. I kept trying to blow up my life jacket, but there was a hole in my lower lip and when I blew, no air went into the tube.

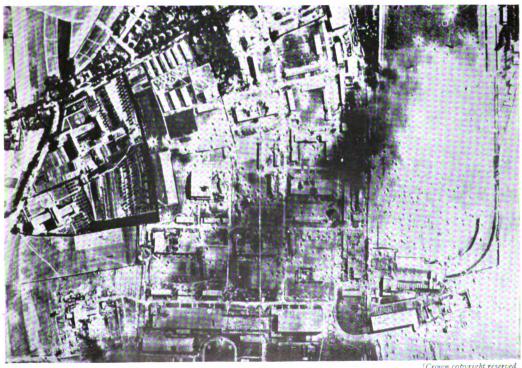
#### FOURTEEN HOURS IN THE WATER.

It was sometime in the early afternoon when I managed to swim into a cove, and let the current drift me to the surf to the left. The tide was out but the current and tide washed me up to the shore over the coral at a point just inside the cove. If I hadn't got past the point, I'd probably have been unable to make land at all. I don't know why the trail of blood I left didn't attract the sharks. I hit the coral and tried to crawl to the beach but was too weak from having been in the water about fourteen hours, and also there was that terrible pain in my shoulder. After a couple of hours the surf washed me up to the sand on my back and after laying there awhile, I managed to get up on the sand and fell asleep—more dead than alive.

#### SEARCH FOR NATIVES.

The tide came in and woke me up—I crawled up into the leaves and rocks and lay there. It began to rain and I managed to get some water from the leaves and drippings. I ate the ants on me and some grass. I found a wide leaf and wrapped my arm in it. It was necessary to grab my right knee and rock back and forth in order to get on my feet (some fun). After getting to higher land, I lay on the shore the rest of the afternoon. Before nightfall, I managed to climb a hill and look around for signs of life, but had no luck. I was so beat up that I laid down to die. I could



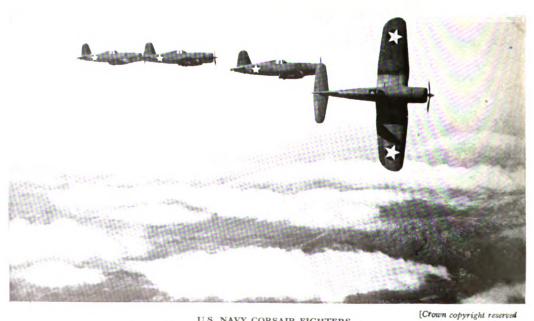


CLASSIC EXAMPLES OF PRECISION PATTERN-BOMBING BY U.S. VIII AIR CORPS.

Top—The devastated Focke Wulfe plant, Marienburg. Bottom—The Messerschmitt plant at Ragensburg.



[Crown copyright reserved]
U.S. VULTEE VENGENACE DIVE BOMBER USED BY THE R.A.F. IN BURMA. (See article.)



U.S. NAVY CORSAIR FIGHTERS.

This type has been in action against the Japanese in the Solomons.

only walk a few hundred feet and then my heart would pound so hard that I would fall down. After resting a few minutes, I stumbled down the hill to the beach. My idea was to head south in order to find natives. I followed the beach until dark, then crawled up above the tide line and laid down.

#### SHORE TRAVEL.

The islands from the air appeared to have a smooth coast line, but I found that this was not true. The coast is made up of a series of coves, like half moons. Usually the inland part of the cove was sandy beach, muddy, or covered with rocks or "peg trees," or covered with bush so that in order to pass you have to work inland along a slope, through vines, brush, undergrowth, and a sort of rose vine which is hard to pass even when crawling. There were a lot of big trees just out from the shore and you have to either crawl over them or go out into the water, in order to get around them. The beach may be sandy, but usually just off shore is coral. Some of it is covered with weeds and leaves which hide the sharp edges; and other times knee-high holes. Towards the points of these half moons are usually rock cliffs and they are 300-400 feet high, although some of them taper in spots to the water. If the tide is in, the water is deep around these cliffs, but when the tide is out it is sometimes possible to walk around them on the coral, in the shallow water. Most of them are impossible to go over because the tops are straight rock and there is no footing. Others have vines and trees sticking out of them, and by going inland and over the rock it wasn't so steep, although sometimes it was impossible to go inland.

The climbing was mostly around the outside near the water level of these points; sticking my toes in holes in the coral rock and hanging on to the rough rock. Once in a while I came to a cliff with a cave in the bottom, and then had to slide down the rocks into the surf and swim like hell to get across to smaller rocks. The surf would throw one up and one would scrape on the rocks, reach up and hope to get one's fingers into a hole to pull oneself up. The surf would go down (sometimes ten feet) leaving one up there. If one didn't catch a hold, down one would go, scraping on the rock. It got to be quite trying and made me very mad at the surf. Then I finally got a hold, a wave from another direction would come along and try to knock me off. Experiences like these, I believe, were the most dangerous of the "Adventure." As it was, I almost drowned. Yes, that was quite an experience, but imagine trying to go across a 50 feet opening like that with ten cans of rations tied in a shirt on one arm. True enough, the waters weren't rough around there, but when they get near shore they come in swells and the rocks seem to break up the swells and cause breakers that are unbelievably big.

### CROCODILES AND SWIMMING.

Anyway I travelled over this stuff all day and that night found a wide stream and while crossing it I saw a crocodile swimming. I couldn't get on shore there because there was none, so I jumped along waist high in mud as near to the bush as I could, and was thankful that the crocodile didn't bother me. I doubt from what we learned

that they will bother you, unless they think that they are in danger.

I had found an old coconut and, being quite hungry and thirsty, sat down by the stream. I couldn't cup water in my hands and had to lay face down in order to drink. I found a finger-nail file in my shirt pocket so I tapped it in the coconut with a rock and peeled the coconut, a few fibres at a time. It must have taken two hours to open it. I peeled out the meat, lost the juice, but the meat tasted good. I wasn't too hungry and a few pieces satisfied me, but I stuffed the rest in my shirt pocket. I crawled and hobbled up into the leaves and tried to sleep. It rained every night except one while we were lost, and the nights were cold.

### More Travel and How Not to.

The next morning I continued on south down the coast, where I found footprints leading up a stream. I travelled inland and found the remains of a Jap shelter, with a water bucket and other trash around. It was probably a year old and in bad condition, and the roof had fallen in. I was inspecting this shelter when I saw an almost naked man coming out of the jungle toward me. As he got closer I could see that

he was neither a Jap nor a native—but it was Stranahan. We were plenty happy to see each other. He had made shore about three hours after I did. He wasn't a very good swimmer and he was fighting the current more than I was. He had gone north along the coast, until he found the stream and then followed it inland, and was just coming out when I saw him. We looked over the Jap shelter and found some Jap wooden sandals which we tried to tie on with pieces of shirt. Stranahan gave me a piece of his shirt for my arm. He had his leg tied up. We ate some more of my coconut and decided to head south along the coast.

We travelled the remainder of the day and the next in that direction. We would find a stream sometimes twice a day, and an old coconut every now and then. Stranahan opened them on sticks and we would munch them as we travelled. The country was getting rougher. We would go over and around points—sometimes swimming, crawling or climbing. We went over several slopes, pulling ourselves up root by root. A root would fall and down we would go, but we would try it again and finally, after going and resting, we would make the grade and would then slide down the other side. Our feet were beginning to bother us now—the stones and coral would cut them, then pebbles and sand would work into the cuts and enlarge them, making quite a mess

We carried our life jackets and tried to use them for covers at night. At night we would get as close together as possible, and try to use the heat of our bodies to keep each other warm. We couldn't sleep much during the night and would try to catch a nap in the morning before the tide went out. About the end of the second day (17th June), we came to a cliff we couldn't get by so we decided to go back to some Jap landing boats and huts which I had seen before I met Stranahan (I forgot to mention these earlier). Our feet were really barking out. We noticed old pieces of "cut" lumber washed upon the shore and Jap packing cases.

Towards the end of the fourth day Stranahan spotted a ration Karmy and was reading off the contents as I was hobbling to catch up. He was jumping up and down and we were overjoyed to find fifteen or sixteen cans scattered along the beach, and a shell case with "USS QUINCY" stencilled on it. We opened one of the rations and found five pieces of candy, three lumps of sugar, a small can of soluble coffee and five biscuits. Boy, did we eat and enjoy a can apiece! We found that some of the cans had beans and hash in them but these cans had holes in them and the food smelled bad. We ate as much as we could anyway, and then threw the rest of the meat cans away. We saved the dry rations and wrapped them in my shirt, and "shacked up" with some real food in our stomachs.

The Jap sandals lasted only a few hours, and most of our travelling was done on bare foot, although each morning I would wrap my feet in leaves, which would last an hour or so. I was getting so I couldn't walk much farther and tried to get Stranahan to go on without me, but he wouldn't. We had spotted an old Jap wooden 4 ft. x 4 ft. life raft a way back, and decided to go back for it. We were going to try to float it around a point, pick up our provisions, and get out in the current, for we felt that we couldn't walk any farther with our feet in their present condition. We finally dragged the raft into the water, and with a stick I tried to paddle past the surf into the current so that I could get into the next bay and pick up our provisions. I couldn't make it and the current washed me back on shore, so we abandoned the raft idea. Probably we would have died of thirst anyway even if we had been able to get the raft out into the current. We crawled over the stony beach and cliffs and got our rations. It took us twice as long to get from the stream to the Jap landing boats as it did when I was coming the other way. We were heading north-west now—the sun setting on the shore ahead of us. We swam the gullies in the rocks, with the provisions in my arm. I was a better swimmer than Stranahan but his feet were tougher than mine so he carried the provisions on land.

I tore up my life jacket and wrapped it around my feet, stuffing it with leaves as it made the going easier on the rocks. I wasn't as surefooted. One time when we were passing over a sheer drop of about 40 ft., I slipped, but caught a root just in time to avoid hitting the rocks and water below. As I say, these cliffs were the most hazardous part of the trip. The shoes were no good in water and I had to clean them

every time we travelled through water and mud.

FIRST AID.

About the fifth day after turning back we came upon the Jap ships and huts. looked them over and Stranahan found an old rubber sole and a leather shoe bottom (both for the left foot), and he managed to tie them on with some Jap line we found in one of the huts. There were about six boats of the same type as those along the coast of Guadalcanal. They were burned and scuttled and too big to be of any use to us. We saw a crocodile run from us and head for the water. We saw birds and planned to build drop cages to catch them, if we stayed. The streams were low, salty, and slow moving. We slept in the bush that night and the next day we passed the point where I had landed. We found more huts and also a folded Jap knife. Stranahan worked away the rust and we finally got it open. We sharpened it and were able to cut down rope and leaves (for blankets). We decided to keep going until we found a place with food and water together. Then we would rest up. Our wounds were smelling quite bad now and we were both afraid of gangrene. A greenish discharge kept dripping from them. Later, though, Stranahan's wound turned black, and either we got used to the smell or they were getting better.

One day a Liberator passed low along the shore and we could see the cargo door plainly. We yelled and waved, but no one was looking our way and it passed on. We later learned that it was supposed to be on a routine search. We saved lids of the ration cans and planned to use them as reflectors, but the sun was never right and we never got to use them. We used the empty cans for cups and also to hold our "coconut steak" (as we called it). We also made coffee in them. The coffee would kill the sweet taste of the coconut. We would also munch a quarter of a biscuit with the coconut, which made it taste better. At first it was hard to eat and drink the coconut because it was so sweet, but as we got hungrier, and agreed that we should save our rations for a tight spot, we got used to the coconuts and we would eat two a day and punch holes in others and drink three when they were plentiful.

We caught a lobster and broke the shell and ate the meat in the claws. saved the rest, but the ants spoiled it and we had to throw it away. The meat was hard to eat but it certainly tasted good to us then. We had decided to keep track of the days, and as I still had my pen and pencil, aviator's certificate, some scraps of paper, and seven dollars (not counting my short snorter), we marked down the days.

### KEEP YOUR SHOES.

The first few days we had travelled as fast as possible, as we had expected someone to find us. Our wounds worried us and we kept hoping that we would be picked up soon. Stranahan wanted to go inland along a stream, and we did for a day, but there was no food and we agreed to follow the coastline, where at least we could live. It became very discouraging at times, and at times I was almost out of my head. Later we settled down and realized that we were not going to die of our wounds right away, that we could find food and water, and that, if our feet held up, we could last

We had come across a number of old Jap shelters in the past few days and had been sleeping in them at night. At one time it rained so hard we stayed two days in the same spot trying to keep dry and warm. We ate a biscuit a day while we were here. We noticed that near these shelters were poles which I believe were once used for drying nets. I also noticed signs of fires by each shelter, and piles of burned rocks and coconut shells. Evidently, when the Japs were here, they lived on coconuts and fish. There were also several tripod poles in the water, probably used for drip nets. We had found a fish hook and line, and a small net, but didn't use them because coconuts were plentiful and easy to get. We did notice fish and eels in the shallow water. The eels would hide under the rocks and never bothered us. We found one clever Jap bed. This fellow had his bunk built up on stakes and had a fire built under it. Most of the bunks were on the ground, and just patches of coconuts, although some of the smarter boys had split them down the middle, and had braided the leaves together, making a sort of blanket. Some of them were still green. At night we used all the leaves we could find to keep warm, but still shivered.

We didn't look haggard at any time, although each thought he was.

TRAVEL THE BEACH AT LOW TIDE.

Our daily routine became: Bind up our feet in the morning and rest until the shore was dry. The sun was blazing when it hit us. I would put salt on my face to keep cool and sweated a lot. At first I would drink a little salt water, but it only made me thirstier so I quit, and managed to hold out between streams and coconuts. The country was getting nicer along about the eleventh day and we came to what looked like a big bay. The vegetation was growing close to the water though, and we had to travel in the afternoons when the tide was out. It was too dense to go inland.

About noon the next day we saw a hut across the bay and our hopes went up although we weren't planning on much. Later in the afternoon we thought that we heard a dog bark, but decided it must have been an owl. We kept going and, finally, could see that there was a village or Jap base across the bay. The bay kept narrowing and finally I saw a canoe in the distance. We began to yell and the village became alive with chattering and small figures running around. A small boat was launched and two natives picked us up and took us across the gap.

The natives proved to be friendly, and looked after us until we were rescued.

# **GREENLAND CASTAWAYS**

AFTER ten days exposed to Arctic tempests on the peak of a submerged mountain jutting from the Polar Sea, three disabled airmen of R.A.F. Transport Command were flown from Greenland to the Royal Victoria Hospital, Montreal. Their ordeal began while on a 5,600-mile flight from the north of Britain to the Pacific coast of British Columbia.

For twenty hours before reaching a completely barren, snow-clad rock, in a small rubber dinghy from a sunken bomber, they hand-clawed a passage fifteen miles through an icefield, between towering icebergs. For eleven days they lived on a few malted milk tablets, tiny pieces of sodden chocolate and an occasional benzedrine energy-producing pill. When all seemed lost, they were saved by a small metal mirror and the vigilance of a United States Army major on board a small ship which had broken down at sea.

For more than two years the rescued crew had been ferrying American and Canadian-built bombers and flying-boats across the Atlantic. They are: Captain Robert E. Coffman (pilot), of Baton Rouge, Louisiana, U.S.A., age 32; Flying Officer Norman E. ("Ted") Greenaway (navigator), Royal Canadian Air Force, of Camrose, Alberta, age 23 (married); Radio Officer Ronald E. Snow, of Digby, Nova Scotia, age 22.

Ordinarily, the air crews of the R.A.F. Transport Command who deliver aircraft

across the Atlantic are flown back as passengers to their headquarters in Montreal. At this time, however, some had been flying twin-engined Hampden bombers from Britain to air schools in British Columbia. In severe weather and against adverse winds. the entire fleet of Hampdens, except the one piloted by Captain Coffman, made the long journey—the longest routine flights ever undertaken by a batch of bombers—without mishap. Captain Coffman took the Iceland—Labrador route from England. Two hours out from Iceland, approaching the east coast of Greenland, an engine failed. After flying on one motor for an hour, height had been lost from 9,000 to 4,500 feet, and then the bomber went into a violent spin. Coffman recovered control at 1,000 feet but the remaining engine died after twenty minutes and the Hampden alighted on the sea in the early afternoon. S.O.S. calls had been sent out but were not heard. The crew. taking emergency kit and rations with them, scrambled out on a wing, which was already awash. Their dinghy floated only a yard or so from them. It was of the type which is stowed in the rear of an engine nacelle and is automatically inflated instantly and released As they took places in it and cut loose, the bomber settled and sank seventy seconds after it had struck the sea. The bomb bay had burst on impact and the airmen seized some wooden wreckage to supplement the two canvas hand paddles with which the dingby was

equipped. Captain Coffman knew his position exactly; Flying Officer Greenaway, the navigator, had pin-pointed it on the chart, and Coffman had selected a course to an accessible haven on the Greenland shore fifteen miles distant.

When the Hampden sank, the stranded aviators found that they were in the midst of an active icefield. Pack ice was everywhere between them and the mainland; their course was dotted with icebergs about the size of a cottage, and dead ahead were others as high as the foretop of a battleship. Even by brushing a floe the rubber dinghy might be punctured or gashed and founder. As the airmen were contemplating the grim prospect a sea lion rose nearby and quizzically gaped at the strange craft and its occupants. The big seal offered the only chance of real food the men were to have in their eleven days of ordeal, but there was no weapon with which to shoot it.

For twenty hours, until ten o'clock next morning when they made land, a battle to cleave the way through the ice went on without respite. Only one man could paddle and fend off ice at a time. The reliefs could not sleep because of the intense cold.

Under full moon the crew travelled twenty yards a minute along the 15-mile avenue of ice between the great luminous bergs—one of the eeriest sea journeys that man can ever have made. Ice formations met in collision and the bergs shed their mass. The air was full of great cracklings and the incessant sounds of thunder, interspersed with a noise like the drum fire of heavy artillery. Dawn showed the soaked paddlers that they had kept a true course, and also that their vividly yellow dinghy had become white. So great was the cold that even the salt water had frozen on it. They made the mainland less than a mile from the point intended, but never reached haven. A swift coastal current made that impossible. So they made their way to a great black rock fifty yards from the shore. It was the 3,000-foot pinnacle of an 11,000-foot mountain below the sea with the name Umanarsuk, which, in the Eskimo tongue, means "shaped like a big heart." The rock rises sheer from the ocean and from it the men could see the snowfilled valleys of Greenland and the ice sheet from coast to coast. They also saw with dismay that never under any conditions would they be able to take their dinghy across the race of raging water that separated them from the icecap, nor could any of them ever swim the angry ice channel. They explored the rock for a cave, but found only one hole with an entrance too narrow to admit any of them. They searched in vain across the 400 yards diameter of the mountain cone for firewood or anything with which to light a fire. There was nothing. The snow-covered crag was devoid of all vegetation. They selected a narrow ledge 100 feet above the sea for a camp and hauled up the dinghy to use it deflated as a kind of tent.

Long before this, Group Headquarters at Montreal had organized a large-scale day and night air search for the missing crew, using aircraft from Labrador, Newfoundland and Iceland. Two hours after they had settled down on the cliff-like precipice the castaways heard a number of these aircraft overhead, but then they were in a storm of sleet and snow. The searching aircraft had to fly at 7,000 feet to clear the mountain tops which fringe the coastline and could neither see the marooned men huddled on their ledge nor the Very lights which they fired. The Very pistol and cartridges were found in the emergency kitbox which had been lugged from the aircraft. There were also three containers each holding 45 malted milk tablets, 4 squares of barley sugar, a small quantity of chewing-gum, 12 pints of water (sealed), first-aid kit, a yellow distress flag, and a 4-inch square metal mirror with attachment for use as a heliograph.

Reckoning on a week before rescue, the crew rationed themselves to six malted milk tablets and a third of a pint of water per man per day. In their pockets they found some chocolate bars softened by salt water, and allowed themselves two inches of chocolate each per day. After seventy-two hours, however, the day's ration was cut to three malted milk tablets and one square of chocolate the size of a postage stamp. Moisture had ruined their few cigarettes. Thirst was quenched by eating snow. Clothing could never be dried. Following the first two days of blizzard came forty-eight hours of sub-zero temperature which froze flying-suits and underclothing stone hard. Three days of furious gale ensued, blowing away the distress flag which two of the men had scaled the summit to plant, preceding another long snowstorm. The gale lifted the sea over the ledge and to escape it the men had to clamber up another 250 feet. It took them many hours, hauling the dinghy after them, so exhausted had they become.

On the ninth day a small ship was sighted about fifteen miles offshore, but the cloud obscured the sun, the helio could not be used, and six Very shots fired at five-minute intervals failed to penetrate the murk of an oncoming storm. The vessel altered course

and disappeared after forty minutes.

By the tenth day the three airmen were completely stricken and at the limit of despair. An aircraft came with the sunrise, flying high; cloud ceiling was very low and the distress signals fired could not be seen. The trio was so weak they could scarcely crawl. Until then, when feeling utterly done in, they had temporarily revived themselves with a benzedrine tablet, but they were now beyond its aid. They had lost so much weight—Coffman, it was found later, 32 lb. and the others 25 lb. each—that their bones were showing. They lay in snow slush, below the upturned dinghy, prepared to die, and talked about leaving some record behind or a message which might one day reach their folks at home. But the only paper they had was pulped by repeated drenchings and their hands, like their feet, were frozen and paralysed.

On the tenth day the relatives had also surrendered hope that the men could be alive. That morning the young wife of Flying Officer Greenaway, in Montreal, had packed her belongings and sent them to her people in Alberta. Next day she was just leaving with her baby daughter to go to them by train when an official messenger brought her the news that her husband and his companions had been saved. Medical officers who saw the three men immediately after the rescue, stated that they were not likely to have lived for more than forty-eight hours longer.

At noon that day Coffman felt his throat parched and burning. The radio operator left his side to crawl out to bring in some melted snow. In a few moments he was back. "Say, boys, I'm awfully queer and may be seeing things," he whispered, "but

I think there's a ship out there standing still.

The dinghy was pushed aside and the men looked out. Before them was a small two-masted vessel, stationary, eight miles away. And at that moment the sun began to show itself and remained shining for the next three hours while the three men. supporting each other on the cliff ledge, flashed the helio mirror and fired signals. The three hours passed with no response from the little ship. They found out later that she was a converted whaler named The Polar Bjorn (Polar Bear) with a Norwegian crew. carrying some U.S. Army officers proceeding to a post in Greenland. By a miraculous chance for the stranded airmen, she had hove to while engine defects were being repaired. It was the last ship of the year making passage through the freezing water of that part of Greenland.

At the end of the three critical hours during which the men on the rock had been signalling frantically and in vain, it happened that Major John T. Crowell, of the U.S. Army from Islehaut, Maine, came on deck to look at the Greenland scenery through binoculars. He thought he saw a momentary bright gleam in the distance, but he dismissed it as a flash of reflected light from snow or ice. Some moments later he saw what looked like a puff of smoke and then a glint as of a seagull wheeling in the (It was actually the breaking of Captain Coffman's last Very cartridge.) When it fell vertically and rapidly, Major Crowell realized that it could not be a sea-bird So he focused his glasses again and had no doubt that the flashing pinpoint was a signal. He went with his news to the Norwegian ship's captain, who supposed that the messages might be a U-boat ruse or a trick by Nazi agents who might have established a radio or weather post on one of the Greenland islands. "Then," said the major, "let's go and capture them." A small boat was launched, with Major Crowell and three Norwegian sailors armed with automatic rifles and with revolvers and combat knives at their belts. Within range of the rock they covered it with their rifles, but lowered them when they saw three helpless men propping themselves up by holding each other round the shoulders. The men were rescued and taken to the ship, but before coffee could be prepared for them they collapsed and did not rouse until long after the vessel's engines had been repaired and it was well on the way to a Greenland fjord. They had discarded their shoes which had frozen to the hardness of cement, on their first day on the rock. and their feet were so swollen and so fully filled their flying-boots that these had to be cut away to allow preliminary treatment. Every inch of their bodies was bruised blue from lying on the rock.

A radio message had been sent to an American Army post in Greenland announcing the rescue, and by field telegraph an out-station near the part of Greenland which the ship was approaching was instructed to send help to the fjord. Two American soldiers, with medical training, proceeded overland and continued treatment of Captain Coffman and his crew.

Thirty-six hours later a cutter arrived in the fjord with two Air Corps medical officers. Under their care the sick airmen recovered sufficiently to be flown to hospital

in Montreal.

# STATISTICAL REVIEW for OCTOBER-DECEMBER, 1943

OCTOBER.

# NORTH EUROPEAN THEATRE.

NINE attacks in force were made by Bomber Command on German industry during the month. All bombs dropped by night bombers fell on targets in Germany. In these attacks more than 13,000 tons of high explosive and incendiary bombs were dropped.

Fog caused more nights of bad weather during October than it has in any month of this year. A run of five very good nights in the first week was followed by a general deterioration and there were seven consecutive nights when thick fog covered the whole area of our operational bases. An interval of comparatively better, but mainly indifferent weather was followed by a still longer spell of widespread fog

different, weather was followed by a still longer spell of widespread fog.

The principal night attacks on the Reich were: Hagen (1st/2nd), Munich (2nd/3rd), Kassel (3rd/4th and 22nd/23rd), Frankfurt (4th/5th), Stuttgart (7th/8th), Hanover (8th/9th and 18th/19th), Leipzig (20th/21st). Minor attacks were made on all these nine nights and on seven other nights, the targets including Hanover, Ludwigshafen, Freidrichshafen, Munich, Bremen, Berlin (five), Frankfurt and Cologne, as well as a variety of objectives in the Ruhr, Rhineland and West and North-West Germany.

In the joint daylight offensive with the U.S.A.A.F., medium, light and fighter bombers of Fighter Command and the Tactical Air Force operated on twenty-three days. Airfields were attacked on ten days, industrial targets on six, railways on nine,

and ports and shipping on eleven.

Intruder operations and offensive patrols and other forms of attack by night were also continued by light and fighter bombers. Intruder operations were carried out on nineteen nights, specific attacks on airfields being made on two nights, on railways on four nights, and on ports and shipping on eight nights. The attacks on the latter objectives were made on three occasions by naval aircraft of Fighter Command.

R.A.F., Dominion and Allied fighter squadrons (apart from U.S.A.A.F. fighter squadrons) provided escort for bombing operations on twenty-one days and carried

out sweeps on fourteen days.

U-Boats and Shipping.—Attacks on shipping of all kinds were principally directed by Fighter Command, more than forty vessels being attacked by day and some twenty by night. Coastal Command Beaufighters also made a successful attack on an enemy liner on the 19th. Sea-mining was carried out by Bomber Command on eleven nights.

U-boat searches and reconnaissance duties were carried out by Coastal Command

throughout the month, and photographic reconnaissance on thirty days.

Escort was provided to convoys by Coastal Command aircraft on twenty-six days. Shipping protection was carried out by Fighter Command on twenty-one days and three nights.

ENEMY ACTION.—Bombs were dropped on this country on twenty-two nights and one day. Less than ten aircraft crossed the coast by day and during the whole of the month the total number of night raiders was approximately 250, including fighter-bombers.

#### AIRCRAFT CASUALTIES.

In offensive operations over Europe from home bases 102 enemy aircraft were destroyed. This total includes enemy aircraft destroyed during bombing raids, "intruder" operations, fighter sweeps and fighter-escort activities.

Over Britain twenty-four enemy aircraft were destroyed, making a total of 126

destroyed during this period by home-based aircraft.

In the course of all these operations the R.A.F. lost 227 aircraft over Europe and none over this country.

The losses announced by the Middle East Command totalled nineteen as against

the destruction of eighteen Axis aircraft.

Allied Force Headquarters in North Africa announced the destruction during the month of 169 enemy aircraft for the loss of sixty-five Allied aircraft.

In India and Burma eleven Allied aircraft were lost, for the destruction of one

enemy aircraft.

In Air Ministry Bulletin No. 11903 dated 26th October it was announced that Bomber Command had destroyed forty-five enemy night fighters during September. Thus twenty-five should be added to the figure of 173 enemy destroyed over Europe from home bases, making the total destroyed 198 and the total number of enemy aircraft destroyed from home bases for September, 215.

## MEDITERRANEAN THEATRE.

The air operations in Italy tended to take much the same course as the land fighting—steady pressure against the enemy. This was exerted wherever and whenever possible in the battle area and on communications and airfields behind the enemy's forward positions as well as long-distance strategic bombing. Offensive sorties were flown on every day except one, and on twenty-four nights by the North-West African Air Force, more than a thousand sorties being flown on several days. Targets in Greece and Albania came in for marked attention during the month, and objectives on Corfu were raided.

Shipping protection was provided on twenty-nine days and twenty-six nights.

The Middle East Command were concerned largely with the operations in the Dodecanese Islands and in anti-shipping searches in the neighbouring waters. Crete and Rhodes were the principal objectives of the Command's bombers. Offensive operations, including anti-shipping sorties, were flown from the Middle East on twenty-seven days and twenty-nine nights. Shipping protection had to be almost continuous during the month. More than a hundred aircraft covered shipping movements on many days, all of which saw some activity of this kind.

Malta's contribution to the Mediterranean operations mainly consisted of shipping

protection sorties.

## India and Burma.

Operations were carried out every day and on twenty-one nights. There was a marked increase in the bombing offensive against Japanese communications in Burma, and fighter-bombers and dive-bombers increased their activity against Japanese troops in the Chin Hills. A Beaufighter Squadron has now shot up its one-hundredth Japanese locomotive in Burma.

#### WEST AFRICA.

Sorties on anti-submarine patrol, reconnaissance or shipping escort took place every day.

#### NOVEMBER.

#### NORTH EUROPEAN THEATRE.

During a November which did not fail to live up to its reputation for bad weather Bomber Command made four major, three moderate and one medium-sized attacks on Germany on eight nights, and on two others one moderate and another medium-scale operation were carried out against railway objectives in occupied territory. Small-scale Mosquito raids on targets in Germany were also made on eight of these nights and on fourteen other nights. Thus night-bombers operated on twenty-four nights, dropping 13,000 tons on Germany and a further 1,500 on occupied territory.



R.A.F. BALTIMORES OVER THE SANGRO.

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The four large-scale operations took place on 3rd/4th against Dusseldorf, with Cologne as a subsidiary target; on 18th/19th a two-pronged attack against Berlin and Ludwigshaten; on 22nd/23rd against Berlin, and on 26th/27th again on Berlin, with Stuttgart as a secondary objective. An average of well over 2,000 tons was dropped on each of these nights.

Moderate-sized operations were carried out against Leverkusen on 19th/20th, Berlin on 23rd/24th and Frankfurt-on-Main on 25th/26th in Germany, and on Modane on 10th/11th, and medium-scale operations on Ludwigshafen on 17th/18th in Germany, and Cannes and other railway targets on 11th/12th in France. Some 4,500 tons were

dropped in these attacks.

The Mosquito attacks ranged over a variety of targets in Western and North-Western Germany, and there were five minor raids on the German capital.

Weather.—Most of the first ten nights of November were poor or bad owing to a continuation of the low cloud and fog which had been such a marked feature of the end of October. Conditions then improved somewhat but were still very changeable.

DAYLIGHT ACTIVITY.—Medium, light and fighter-bombers were active in daylight, both in association with attacks of the U.S. Army Air Force and in independent missions. Bombing was carried out on twenty-one days, airfields were bombed on six days, railway targets on nine, and industrial and miscellaneous objectives on sixteen other days. Fighter attacks were also made on trains on sixteen days.

Intruder operations and offensive patrols were carried out on twenty-five nights. Bombing attacks were made on airfields on fourteen nights, on railway targets on

nine nights, and on industrial and other objectives on two other nights.

R.A.F., Dominion and Allied fighter squadrons escorted bombing operations on eighteen days and made sweeps in support on fourteen days.

U-Boats and Shipping.—Both by day and night aircraft ranging from medium bombers to fighters harried enemy shipping and port installations. Shipping objectives were bombed on fourteen days, fifty vessels being attacked, and by night seventeen ships, naval aircraft making the strikes on five occasions. By day fighters attacked nearly fifty enemy vessels of various kinds.

Coastal Command also bombed seven ships during the month as well as making numerous attacks on U-boats. Sea-mining was carried out by Bomber Command on

thirteen nights.

Coastal Command flew U-boat patrols throughout the month and also carried out reconnaissance duties on every day. Aircraft of this Command escorted convoys on twenty-two days and fighter protection was afforded shipping on twenty-five days and

two nights.

ENEMY ACTION AGAINST THIS COUNTRY.—The enemy dropped some 120 tons of bombs on this country during the month, all in the southern half of England, many of them on fringe targets. Raids were made on thirteen nights but there were never more than twenty aircraft over during a night and the total night raiders for the month barely exceeded 150. By day enemy aircraft dropped bombs on three occasions, some dozen aircraft being involved.

#### MEDITERRANEAN THEATRE.

Air operations in Italy were considerably intensified towards the end of the month when the 8th Army launched its offensive across the Sangro. Sorties exceeded a thousand in number on several days.

Support in the battle areas was particularly intense both in the early days of the month when more than 300 of these sorties were made on both the 2nd and 3rd, and in the last week when nearly 500 aircraft operated in the east battle area alone.

Strategic bombing ranged over a variety of targets, mainly communications and airfields, in Albania, Greece, Yugoslavia, Bulgaria and France, as well as in Italy. Offensive operations were carried out on twenty-nine days and twenty-two nights.

Aircraft of N.A.A.F. provided shipping protection on thirty days and twenty-seven

nights.



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R.A.F., Dominion and Allied fighter squadrons escorted bombing operations on eighteen days and made sweeps in support on fourteen days.

U-Boats and Shipping.—Both by day and night aircraft ranging from medium bombers to fighters harried enemy shipping and port installations. Shipping objectives were bombed on fourteen days, fifty vessels being attacked, and by night seventeen ships, naval aircraft making the strikes on five occasions. By day fighters attacked nearly fifty enemy vessels of various kinds.

Coastal Command also bombed seven ships during the month as well as making numerous attacks on U-boats. Sea-mining was carried out by Bomber Command on

thirteen nights.

Coastal Command flew U-boat patrols throughout the month and also carried out reconnaissance duties on every day. Aircraft of this Command escorted convoys on twenty-two days and fighter protection was afforded shipping on twenty-five days and

two nights.

ENEMY ACTION AGAINST THIS COUNTRY.—The enemy dropped some 120 tons of bombs on this country during the month, all in the southern half of England, many of them on fringe targets. Raids were made on thirteen nights but there were never more than twenty aircraft over during a night and the total night raiders for the month barely exceeded 150. By day enemy aircraft dropped bombs on three occasions, some dozen aircraft being involved.

#### MEDITERRANEAN THEATRE.

Air operations in Italy were considerably intensified towards the end of the month when the 8th Army launched its offensive across the Sangro. Sorties exceeded a thousand in number on several days.

Support in the battle areas was particularly intense both in the early days of the month when more than 300 of these sorties were made on both the 2nd and 3rd, and in the last week when nearly 500 aircraft operated in the east battle area alone.

Strategic bombing ranged over a variety of targets, mainly communications and airfields, in Albania, Greece, Yugoslavia, Bulgaria and France, as well as in Italy. Offensive operations were carried out on twenty-nine days and twenty-two nights.

Aircraft of N.A.A.F. provided shipping protection on thirty days and twenty-seven

mights.

Offensive operations from the Middle East were principally directed against Crete and Rhodes and against shipping in the Eastern Mediterranean, aircraft being engaged on eighteen days. Shipping protection was afforded on twenty-eight days and two nights.

### INDIA AND BURMA.

Every day and for twenty-two nights the R.A.F. operated against the enemy in Burma. Railway centres and airfields have been the principal objectives by night while by day traffic on railways, rivers and roads, encampments and strong points were attacked. One day (1st November) over 200 sampans and other small rivercraft were damaged. Supply dropping to troops in forward and inaccessible areas was carried out, hundreds of tons being successfully delivered.

# WEST AFRICA.

Sorties on anti-submarine patrol, reconnaissance or shipping escort were made on every day.

### AIRCRAFT CASUALTIES.

In offensive operations over Europe from home bases sixty-one enemy aircraft were destroyed. This total includes enemy aircraft destroyed during bombing raids, "intruder" operations, fighter sweeps and fighter-escort activities.

Over Britain thirteen enemy aircraft were destroyed, making a total of seventy-four

destroyed during this period by home-based aircraft.

. In the course of all these operations the R.A.F. lost 224 aircraft over Europe and none over this country.

The losses announced by the Middle East Command totalled thirty-six as against

the destruction of thirteen Axis aircraft.

Allied Force Headquarters in North Africa announced the destruction during the

month of 182 enemy aircraft for the loss of 73 Allied aircraft.

In India and Burma three Allied aircraft were lost, for the destruction of five enemy aircraft.

### DECEMBER.

### NORTH EUROPEAN THEATRE.

The outstanding feature of the night bombing during the month was the series of four great attacks on the German capital, during which nearly 7,000 tons of bombs were discharged. Each stage in the Battle of Berlin involves an aerial battle, and against such a deeply defended target as Berlin the attacker has to show the utmost resource in achieving concentration of bombing and avoiding heavy casualties. For every aircraft lost in these four attacks on the nights of 2nd/3rd, 16th/17th, 23rd/24th. 20th/30th, some seventy tons of bombs fell on the Reich capital.

Two other major attacks were made during the month—a most successful one against Leipzig on the 3rd/4th and a 2,000-ton operation against Frankfurt on the 20th/21st. Supplementary raiding was made on German objectives on sixteen nights of the month, mainly by Mosquitoes. Almost the whole of the 12,000 tons dropped by Bomber Command fell on Germany. Military objectives in occupied territory were

bombed, however, on three nights.

Weather.—December ranked with January and October as the worst months of the year for night bombing. Weather at home operational bases in 1943 was best in February and during the months of April to August. There were more good nights than bad ones in March and September, and weather during November, although very changeable, was about equally divided between good and bad. January, October and December, however, were characterized by frequent and widespread fog and very low cloud.

Conditions during December were very good on eight nights, and poor or bad on most of the remainder. Widespread fog or very low cloud occurred on all but five nights in the first three weeks, after which conditions improved.

DAYLIGHT ACTIVITY.—Medium, light and fighter-bombers were active both in association with U.S.A.A.F. attacks and on independent missions. Bombing was carried out on nineteen days, airfields were bombed on four days, railway targets on two days, and industrial and military objectives on sixteen days.

Intruder operations and offensive patrols were carried out on twelve nights, bombing attacks being made on airfields on three occasions. R.A.F., Dominion and Allied fighter squadrons escorted bombing operations on eighteen days and made sweeps in

support on twelve days.

U-BOATS AND SHIPPING.—However well the Battle of the Atlantic may go Coastal Command aircraft have to remain unceasingly vigilant, and throughout the month anti-submarine and reconnaissance patrols were flown. Offensively aircraft of this Command attacked three convoys and eighteen ships as well as making a number of attacks on U-boats. Aircraft of other R.A.F. commands made attacks on fourteen ships. Sea-mining was carried out by Bomber Command on nine nights. Coastal Command escorted convoys on twenty-four days and fighters provided shipping protection on twenty-four days and one night.

ENEMY ACTION AGAINST THIS COUNTRY.—The enemy operated against this country on two days and eight nights. On only one night, 10th/11th, was the force more than a handful, and the total number of enemy aircraft operating during the whole of the month, both by day and night, was between sixty and seventy.

#### MEDITERRANEAN THEATRE.

Air operations in the Italian campaign were hampered on occasion by the weather but more than a thousand sorties were put out on ten days during the month. Offensive operations were carried out on every day and on twenty-seven nights. Shipping protection was carried out by N.A.A.F. on thirteen days and fourteen nights.

Offensive sorties from the Middle East were carried out on seventeen days and fourteen nights and shipping was attacked on twenty-five days and nine nights. Pro-

tection was afforded shipping on twelve days and one night.

### South-East Asia.

On every day and twenty-six nights aircraft operated against the enemy in this theatre. Supply dropping to troops in forward areas, particularly in the Chin Hills, was carried out on twenty days.

## WEST AFRICA.

Sorties on anti-submarine patrol, reconnaissance or shipping escort were made on every day except one.

#### AIRCRAFT CASUALTIES.

In offensive operations over Europe from home bases 127 enemy aircraft were destroyed. This total includes enemy aircraft destroyed during bombing raids, "intruder" operations, fighter sweeps and fighter-escort activities.

Over Britain six enemy aircraft were destroyed, making a total of 133 destroyed

during this period by home-based aircraft and by anti-aircraft guns.

In the course of all these operations the R.A.F. lost 221 aircraft over Europe and none over this country.

The losses announced by the Middle East Command totalled five as against the destruction of five Axis aircraft.

Allied Force Headquarters in North Africa announced the destruction during the month of 215 enemy aircraft for the loss of ninety-eight Allied aircraft.

South-East Asia Command announced the loss of twenty-two Allied aircraft and the destruction of forty-four enemy aircraft. The losses for India and Burma announced in the Statistical Review for November should be amended to read twenty-one Allied and thirteen Axis.

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# **NEWS FROM PARLIAMENT**

THE FUTURE OF CIVIL AVIATION—AIR TRANSPORT AS THE EMPIRE'S LIFE-LINE—MEASURES TO AID SERVING MEN AFTER THE WAR.

(From our Parliamentary Correspondent.)

Вотн in and out of Parliament the question of Britain's position in civil aviation after the war has lately been the subject of discussion. At Westminster efforts have been made to persuade the Government to reveal their policy, some hints of which were given by Lord Beaverbrook in the House of Lords on 19th January. Outside, an active campaign has been launched by the Air League to make the public aware of the need for civil air power, especially in relation to the Empire. The League believes that air transport is vital to the Empire's future commerce and defence, that Imperial and international co-operation must be secured, that freedom of operation and freedom of passage must be established and that control of civil aviation should be in the hands of a non-service ministry and that private enterprise should be encouraged. The League worked very hard between the two wars to awaken the country to the importance of air power and it founded, among other things, the Air Defence Cadet Corps which the Air Ministry later turned into the A.T.C. Its president is the Duke of Sutherland and its executive committee includes Marshal of the Royal Air Force, Sir John Salmond, and a number of senior R.A.F. officers. Air Commodore J. A. Chamier has returned to the League as executive controller.

The League's policy will find favour with all those who are aware of the dominant part which the aeroplane will play in international and Commonwealth relations after the war. For Britain, as Lord Bennett said recently, strength in the air will be as vital in peace as it has been in war. It must be built up and maintained with the same drive and inventive genius that has characterized our war effort. In relation to the Empire it will be a matter of existence, he said. If we do not act first, others will, and we should find the Dominions turning to other nations. Broadly speaking, these were the sentiments expressed in the debate in the Lords which also covered the question of the B.O.A.C.'s future and the Government's attitude to monopolies or, as Lord Beaverbrook prefers it, to "chosen instruments." This was the second debate on civil aviation in the Lords within five weeks. Just before the Christmas recess Lord Rothermere, who is maintaining the tradition of his family by his progressive attitude towards aviation, called for the establishment of a great civil airport in London. His plea met with a disappointing reply from Lord Sherwood, an Under-Secretary for Air, who presented various difficulties in the way of constructing such a terminus in city areas, and the only glimmer of hope in his speech was that in building new military airfields near London the Air Ministry was not unmindful of civil needs after the war. One speaker suggested that the R.A.F. might be prepared to hand over some metropolitan airfields—Northolt, for example. But it was an inconclusive debate and on the central topic, not very hopeful. In all these matters much depends on the Government's decisions regarding a Ministry of Civil Aviation; if and when that is formed it would indicate progress. There is a widespread desire for such a ministry and one can see that a likely candidate for the job of Minister is Captain Harold Balfour, at present Lord Sherwood's co-Under-Secretary.

In the Lords on 19th January, Lord Londonderry, who was Secretary of State before the war, asked Lord Beaverbrook to indicate the Government's mind on these points: the international regulation of civil aviation; the supply of adequate civil transport now: the principles governing British air-line operations within the Empire and to foreign countries; the policy of the chosen instrument; and the question of the separation of civil aviation from the Air Ministry.

Lord Londonderry considered the policy of the chosen instrument was restrictive and he pointed to American development in the past few years. Before Pearl Harbour there was one big air company in the overseas field in America. Now there were many lines flying all over the world. While out of his long experience with the Air Ministry he had the greatest regard for it, he believed that Service control would have a sterilizing influence on civil aviation. The two should be separated. Lord Mottistone made an

interesting speech and he, too, appealed for a separate ministry, though not in war time, for it was generally agreed that the Air Ministry must keep control for the duration. Referring to the Empire, he said: "We must have a civil air force if we are to survive as an Empire. Much must depend on foreign trade, and the way to promote foreign trade is to have swift communications, and the way to have swift communications can only be by the air. As the British Empire is so far more wide-flung than any other organization in the world, including even the great United States of America, it is more vital to our interests to have a first-class civil air force than it is for any other nation in the world." Lord Rothermere urged that if there was to be a conference we should go to it with our plans ready. Lord Strabolgi, speaking of the freedom of the air, warned against thinking that the solution to our problems lay simply in an agreement with Pan-American Airways; it was much more than that. The question of direct routes had to be tackled. The quickest way to India, for example, was not the route we used to fly, but across the mainland of Europe. We should need the co-operation of Russia, China, the Dutch, the French and Belgians and others over whose territory we should need to fly.

Lord Beaverbrook, speaking with characteristic energy, devoted much of his speech to the success of our productive capacity in war. He went straight to the question of B.O.A.C. It was not a monopoly but a "chosen instrument," he said. It had a monopoly of subsidies for overseas air traffic, but nothing else. So far as overseas traffic by private companies, shipping or others, may be carried on without any subsidy, then there could be no objection on account of the statutory rights of B.O.A.C. The same applied to air transport within Great Britain which was already the charge of railway companies under the Railways Air Services. There was also another line called Allied Airways to Orkney, and both lines were independent. Lord Beaverbrook described as "futile and foolish" any attempt to discuss the future of civil aviation in relation to the Air Ministry at this time, for the Air Ministry had many issues to dispose of which concerned the future of civil aviation which could now await transfer to another ministry. He then described the Brabazon and the Tudor. "Since I spoke last, on 20th October," he said, "we have done a very great deal... we have been making progress in providing types of aircraft for civil aviation... First of all there is an aeroplane which is known as the Brabazon. This is a very big project. The all-up weight is designed to be more than 200 tons, with a speed of 250 miles an hour and a capacity for fifty passengers and two tons of mail. The aeroplane will be scheduled to cross the Atlantic in fifteen hours. The design of the Brabazon has been begun and the prototypes are actually on order, but do not on that account expect a swift conclusion because, of course, years must pass before a type so completely new can be brought from the drawing board to the traffic route. The Secretary of State for Air and the Minister of Aircraft Production have taken into account the long time that must elapse before the Brabazon makes its maiden journey, and it is for that reason that a project for another type has been launched. The all-up weight is about 32 tons. You will say that this is not much to boast about compared with the Brabazon. But just the same this is a very fine plane This new aircraft (the Tudor) will have a cruising speed of 220 miles per hour, will be fitted with de-icing means and will be constructed in a form suitable for pressurization. The journey over the North Atlantic, in winter as well as summer, with twelve passengers and luggage will be an easy flight. Its design is already in hand. it is ready before the end of the war—and we expect it will be—it will be most suitable for military transport.'

Lord Beaverbrook next dealt in general terms with international agreement and British policy. The Government were ready at any time for a conference. No nation, great or small, except the aggressors, must be debarred from a share in development and it would be the Government's aim to make civil aviation a mainstay of world peace. The Government had no desire to exclude other nations from bases under British control. We were ready to negotiate with a view to disposing of all traffic problems and arrangements that would arise. He was authorized by the Prime Minister to say that the Government subscribed fully to the principles laid down by President Roosevelt, namely, the right of innocent passage for all nations and the right to land anywhere for

refuelling and other non-traffic purposes. The Government intended to take a full measure of responsibility for the development of civil aviation when the war ended.

Turning to Britain's productive power, Lord Beaverbrook said we had exhibited a remarkable capacity for design and development of new types and had manifested the highest degree of engineering skill in bringing production to a state of efficiency. All this would have some point when it came to dealing with the needs of civil aviation. In July, 1940, we had launched the project for building the Merlin engine in the United States with funds provided by British investors' securities, the sum being between twelve and fifteen million pounds. Within twelve months the engines were in existence and the Americans had since adopted the engine for some of their fighters. In Great Britain, too, great things had been done, and in this connection Lord Beaverbrook gave some figures relating to British and German air strength when war began. The Germans had 4,320 first-line planes plus reserves, and they had an advantage of four to one over us. In the first four months of 1940 just over 2,700 operational aircraft was produced by Britain. In the next four months the number was just over 6,400 "Now what is the conclusion I ask you to draw from this?" asked Lord Beaverbrook That the aircraft industry which served us so well in our hour of greatest peril is capable of performing, when peace comes, a programme of design, development and production of civil aircraft which will not disappoint the highest hopes of those of us who believe in the dazzling future of civil aviation throughout the Empire. shall need machines not only for the great trunk routes that will link the Empire, but aircraft of smaller sizes for internal and feeder lines. We shall want to operate from the snows of the north to the heat of the Equator. That is our purpose and that is our intention."

As to the number of aircraft we should require, he had set down 2,000 as a tentative figure. In 1943 Pan-American carried twice as many passengers and four times as much mail as in 1941; and the Civil Aeronautics Administration in Washington estimates that internal lines in the United States would require 5,000 machines in 1950. According to American figures 1,000 aircraft were now crossing the North Atlantic each week. There were immense possibilities for civil aviation after the war and the Empire was in every respect suited to this form of transport. There would be new opportunities to link up and develop to the fullest extent the essential resources of raw materials for men and women everywhere who would be waiting for the flow that must take the place of the drought of the past five years.

Lord Londonderry's comment was that he would have liked a clearer enunciation of the Government's policy. If the purposes which Lord Beaverbrook had outlined were to be fulfilled we should require the same drive and inspiration which had been provided by the Prime Minister while we had been fighting for our lives.

# Some Assurances for the Future.

The House of Commons has recently been considering two Bills designed to assist ex-Service men in civil life after the war. One of these, the Disabled Persons Bill, was passed at the beginning of February amid a chorus of good wishes from all parts of the House. This is an admirable measure, its purpose being to help back to decent jobs men disabled by war service in the Forces and industry. Rehabilitation and training courses are to be organized and all employers will be obliged by law to take a certain quota of the disabled on their staffs. A register will be kept for the purpose. If there is any congestion on the courses some degree of priority will be given to ex-Service men, but on the whole they will receive equal treatment with the industrial disabled.

The day before this Bill was passed the House had its first opportunity of debating the Reinstatement in Civil Employment Bill. This relates to the pledge given in the original Military Training Act of 1939 that all men called up would be given back their jobs. That was a peace-time measure and the new Bill removes many anomalies brought about by four years of war. Volunteers and certain classes of Civil Defence workers are now included. The Bill is not a charter of full employment or anything

like that. It relates simply to existing jobs or alternative ones that an employer may offer when the ex-Service man applies. If a man's old firm has disappeared he will not be helped by the Bill. Employers will be legally bound to reinstate where possible, and the view of the House in the initial debate was that there was a general desire among employers to re-engage their old employees whether they were bound by law to do so or not. However, the Bill does give serving men some assurance on this important matter of a job after the war. The Bill provides for minimum periods of employment, reinstatement in jobs of not lower rating than those vacated, and in the case of more than one man applying for a job which has been held successively the intention is that it shall be given to he who was senior in engagement.

The other side of the post-war picture, the question of those who will want to stay in the Services, has also been under review. In the House of Lords, where this matter has been raised on a number of occasions recently, Lord Croft, Under-Secretary of State for War, was able to give the most positive assurances. On 2nd February he said that "in spite of the almost overwhelming pressure of war" the Services were "getting right down to the subject." He could say with confidence that the Services appreciated that it must not be for any lack of plan that the opportunity be lost of retaining all those officers and men of proved merit and suitable age who desired to make the science of arms their permanent profession. The first care of the Services would be to retain the pick of the tried warriors, if they would remain. It would be a natural corollary that the future conditions of service must be considered with this object in mind. There was no intention of allowing service to the country to be regarded as a mere substitute for employment which men could not secure elsewhere. The best brains, ability and physique would be needed for the specialized work of the modern Services.

# NEWS IN BRIEF.

Here are some items of news given by Sir Archibald Sinclair, Secretary of State for Air, in answer to questions:—

W.A.A.F. as PILOTS.—Members of the W.A.A.F. are not to be allowed to fly ambulance planes, as the evacuation of casualties by air involves flying in the vicinity of battle areas, and pilots engaged in this work must be available for general flying duties in the theatre of operations concerned.

BOMB TONNAGE ON GERMANY.—During 1943 aircraft of Bomber Command dropped over 136,000 tons of bombs on Germany compared with some 2,400 tons dropped here by the Luftwaffe.

SHORTAGE OF UNIFORMS.—Action has been taken (2nd February) to ensure the adequate supplies of R.A.F. uniforms would soon be available in base areas of the Central Mediterranean Air Force, where a shortage had occurred.

AIRCRAFT LOSSES: In 1939, 2,369 British and 997 U.S.A.A.F. were reported lost over Germany and Northern Europe. The corresponding figures for January, 1944, were 319 British and 178 American.

NEW MEMBER.—Flight Lieutenant W. Teeling, newly elected member for Brighton, took his seat in the House of Commons on 8th February.

# ON TALKING AND LISTENING

By WILLIAM H. PICK.

I READ to-day in my morning's newspaper that it has been computed by someone that the average man speaks about 216,000 words a day. I do not know at all precisely what is meant by "the average man" nor were details given as to how the "someone" had arrived at his startling figure. Perhaps that "someone" stood by the side of various men for various but known periods of time and counted every word uttered. afterwards working out for each man his twenty-four-hour contribution and then averaging the various men to arrive at the quoted "average man." I should not have liked to have such a recording mentor by my side. I am sure that his presence would either have made me more voluble than usual or have made me completely silent. Or perhaps some mechanical "gadget" was used to be carried by the victim in his pocket to record and to count each word uttered: a kind of "gas" meter, to make a pun. If so, I should not have liked to have heard that "gadget" recording back to me what I had said all the livelong day: I fear my self-respect would have been strained at the recital of so much that was trivial and of so much that could so well have been left unsaid.

Truly, 216,000 words each day is a prodigious number. The figure taxed my credulity as it taxed the credulity of the newspaper which commented upon it. It represents, as the newspaper remarked, something more than a quarter of the Bible and almost a full-length novel by Dickens. I can just credit it in the case of these fellows in the club, Robinson and Smith—these are not their real names—who certainly do chatter a lot; the number of times they use the first person singular pronoun daily is itself massive and they possess the ability to talk around any point and at any distance. however great, from it. But we are not all like Robinson and Smith, thanks be.

Unless each and every one of us talks a lot to himself, it is both salutary and depressing to reflect that most of the 216,000 words are spoken in conversation and therefore, are spoken to a hoped-for listener. Which is perhaps the reason why listeners exist more in theory than in reality, and why listening is a decaying art. The

multitude of words is too much to tolerate.

By dictionary definition a conversation between two people connotes an interchange of views, a give and take in words, a speaking and a listening in due rotation, a communing, or, maybe, a moaning, together, a bi-polar process with talker and listener poles which continually alternate. In real life a conversation is so very often just a matter of two monologues, sometimes touching at a point or two but frequently; like the parallel lines of Euclid, never meeting at all. Each party pursues his own train of talking and maintains it tenaciously, often quite oblivious to what the other fellow is saying. That "the ego is the centre of the universe" is a philosophical doctrine of long standing and of wide acceptation; it finds very often indeed clear exemplification in our conversations. When we say, as often we do, that we want "someone to talk to," it means much more often than not that we merely want to have someone present while we talk, the someone to be mainly silent save for occasional monosyllables or phrases signifying agreement with our views.

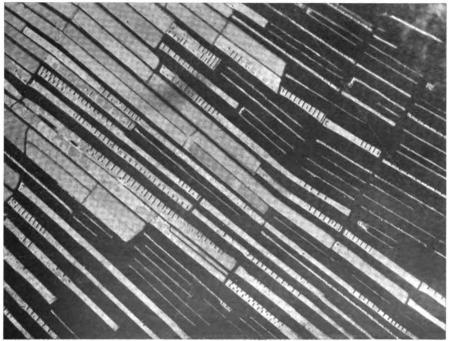
And what is the recipe for that rare phenomenon, the good conversationalist? To my mind, that recipe should contain the following ingredients: he should have something to say; he should let the other fellow have his say and should listen to it with intent to take it in; he should like the other fellow with whom he is conversing; he should eschew the temptation to be "clever" or to make rhetorical points. Especially would I again emphasize the essential bi-polarity of conversation; there is always the other fellow, and a man cannot be a good conversationalist without being a good listener and letting his talking and his listening in the conversation alternate

in just proportion.

And that is the burden of my plaint against those members of the club whom I have called Robinson and Smith for the nonce; in their conversations they always forget

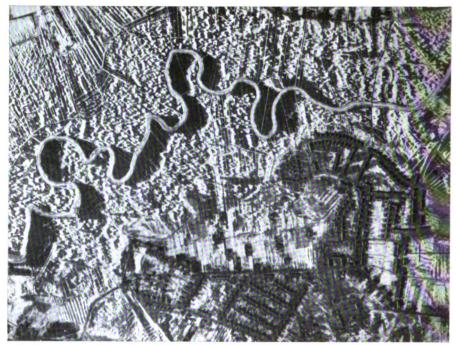


TREE-TOPS REFLECTING THE LIGHT FROM AUTUMN SUN.



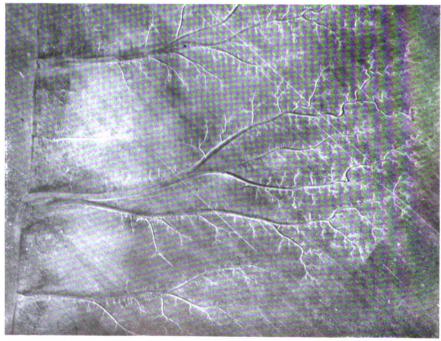
FLOODED POLDERS IN HOLLAND.

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FROZEN TRIBUTARY OF THE ELBE.

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CHANNELS CUT BY WATER DRAINING ACROSS THE BEACH AT LOW TIDE INTO THE MAIN STREAM OF THE EMMS.

the other fellow with whom they are talking. To use a homely phrase: that other fellow cannot "get a word in edgeways"; and I and all the other fellows want to get several words in, not only edgeways but frontways. We may not be particularly knowledgeable or particularly important, but we do want to have our say; and this inability of the other fellow to have his say may be the reason why, of late, neither Robinson nor Smith has found anyone willing to be talked to, and they have had, perforce, to talk at length to one another, which is, perhaps, an adequate punishment for both. Freedom for oneself to talk carries with it the obligation of freedom for the other fellow to talk; one must listen as well as speak. At least, one must adopt this principle if living with the other fellow is to be harmonious.

And if there are the many who can talk without being able to listen, there are the few who can listen well without being able to talk. The latter few are treasures indeed in a club or mess or, in fact, in any place where men foregather; they are universally popular and universally used as receivers for confidences, views, diatribes, grousings and moanings. But although he who talks overmuch and does not listen is a curse and he who listens overmuch and does not talk is a blessing, neither can be justly termed a conversationalist: they are both individualists and conversation is, or should

be, co-operative.

I still cannot believe, however, that I, as a very average individual, speak some 216,000 words each and every day. If I must be completely honest, I cannot even believe that those garrulous fellows Robinson and Smith do, though I admit they try very hard to reach that total. Perhaps one of the many societies in the land or some young graduate in science anxious to get a doctorate will carry out a full-scale investigation to settle the question as to what is the verbal output of human beings, experimenting on those who talk much and on those who listen much, as well as on those who do neither the one nor the other. The investigation might at least make some of us change our ways and might even curb Robinson and Smith, which would, indeed, be an achievement and very acceptable to the club.

# COMBINED NAVAL AND AIR OPERATIONS

A COMBINED Admiralty and Air Ministry communiqué issued on 22nd January, 1944, stated that attempts by strong forces of U-boats, and later by long-range enemy aircraft armed with glider bombs, to launch major attacks on an important Atlantic convoy some weeks previously, were decisively defeated by H.M. escort ships in co-operation with aircraft of Coastal Command and aircraft of the U.S. Navy, operating with that Command. During the whole period of the convoy's passage, close escort was provided, day and night, by surface forces of the Royal Navy and Royal Canadian Navy, and by Catalina and Ventura aircraft of the U.S. Navy, by Hudson and Fortress aircraft of Coastal Command, operating from Gibraltar and the Azores, and by Liberator and Sunderland aircraft of Coastal Command, operating from British bases.

In a series of engagements which continued intermittently for four days and three nights, H.M. ships, which were under the command of Captain L. F. Durnford-Slater, R.N., in the sloop H.M.S. *Pheasant*, destroyed at least one U-boat, probably sank a

second, and damaged several others.

In addition to these successes one U-boat was probably destroyed and another believed to have been damaged by Leigh-Light aircraft of Coastal Command. A number of enemy aircraft were shot down into the sea by aircraft which operated in wide areas around the convoy, and some others were so badly damaged that they were unlikely to have reached their bases. All efforts by the enemy to launch a concentrated attack were completely frustrated.

The convoy, northbound for the United Kingdom, was about 250 miles west-southwest of Cape St. Vincent when hostile aircraft were observed at intervals making use

of cloud cover to shadow the ships. The enemy aircraft remained outside the range of H.M. ships' guns, but they were driven off by aircraft of Coastal Command, which

arrived to give the convoy cover in strength.

Hudsons operating from Gibraltar, under the command of Air Vice-Marshal S. P. Simpson, C.B.E., M.C., and Fortresses operating from the Azores, under the command of Air Vice-Marshal G. R. Bromet, Ç.B., C.B.E., D.S.O., provided close escort and carried out wide anti-submarine sweeps around the convoy during the hours of both daylight and darkness. Over the Bay of Biscay and the approaches to the Bay. Coastal Command Liberators, Sunderlands and Beaufighters from Groups commanded by Air Vice-Marshal B. E. Baker, C.B., D.S.O., M.C., A.F.C., and Air Vice-Marshal Sir Leonard H. Slatter, K.B.E., C.B., D.S.C., D.F.C., maintained almost constant patrols from United Kingdom bases and engaged many enemy aircraft as they set out in the direction of the convoy.

Action was first joined with the enemy in a position about midway between the Azores and the coast of Portugal. Shortly before dawn a Leigh-Light aircraft from a squadron commanded by Wing Commander E. G. Palmer, illuminated a U-boat on the surface and attacked with depth-charges. Although it was impossible to observe the full results of the attack, the enemy is believed to have suffered some damage.

Several hours later the frigate H.M.S. Exe (Commander G. V. Legassick, D.S.C., R.D., R.N.R.) detected a U-boat in the vicinity of the convoy and attacked with depth-charges. Within a few minutes a periscope broke surface fine on the frigate's port bow and at a distance of about 400 yards. The U-boat at once dived and H.M.S. Exe carried out two more attacks. Soon afterwards an oil patch rose to the surface in the approximate position of the sighting and noises were heard similar to those of a submarine blowing tanks in an attempt to surface. Contact was not regained with the U-boat, which is considered to have been damaged.

Within three hours a U-boat was reported on the surface about fifteen miles on the convoy's port quarter. As the sloop H.M.S. Chanticleer (Lieutenant-Commander R. H. Bristowe, D.S.O., R.N.) proceeded at speed to engage, the enemy submerged. Another sloop, H.M.S. Crane (Lieutenant-Commander R. G. Jenkins, R.N.), who was in a favourable position to attack, fired a pattern of depth-charges, but with inconclusive results. Darkness was by then closing in and while H.M.S. Crane was rejoining the convoy from astern, she encountered two more U-boats on the surface. Both enemy vessels dived on being illuminated and the sloop at once made speed to reinforce the convoy escort.

Before daybreak the following morning, a Leigh-Light aircraft from a squadron commanded by Wing-Commander C. J. H. Gresswell, D.F.C., was patrolling ahead of the convoy when it illuminated another U-boat and attacked with depth-charges, which straddled the enemy amidships. The U-boat is considered to have been severely

damaged in this attack and was probably destroyed.

Meanwhile, further surface escorts had been ordered to join the convoy and while proceeding to make a rendezvous, these ships came upon two more U-boats. Attacks were carried out by the corvettes H.M.C.S. Calgary (Lieutenant-Commander H. K. Hill, R.C.N.V.R.) and H.M.C.S. Snowberry (Lieutenant J. A. Dunn, R.C.N.V.R.)

Later, in the vicinity of the convoy a Fortress aircraft engaged on close escort succeeded in bringing a Junkers aircraft to action and scored hits on the tail and port

wing before the enemy managed to disengage in cloud.

Towards evening a number of U-boats were reported concentrating ahead of the convoy's track. The frigate H.M.S. Nene (Commander J. D. Birch, R.D., R.N.R.) in company with H.M.C.S. Calgary and H.M.C.S. Snowberry, proceeded to hunt and soon illuminated a U-boat, which was engaged with gunfire.

soon illuminated a U-boat, which was engaged with gunfire.

The enemy dived, but H.M.S. Nene and H.M.C.S. Snowberry obtained another contact and fired patterns of depth-charges. These apparently mortally damaged the U-boat. A deep underwater explosion was heard and, soon afterwards, the light of

starshell showed the U-boat breaking surface.

Simultaneously H.M.C.S. Calgary, H.M.C.S. Snowberry and H.M.S. Nene engaged the enemy with every gun which could be brought to bear and scored a number of

hits. Members of the U-boat crew were then seen abandoning ship by jumping into the sea. The U-boat sank a few minutes afterwards. Seventeen survivors were picked up by H.M. ships and made prisoners-of-war.

During the remaining hours of darkness two further efforts to pierce the screen of the convoy escort were made, but both times H.M. ships intercepted and drove off the U-boats.

With dawn the convoy reached effective range of aircraft operating from the United Kingdom and British-based Liberators arrived to give close escort. For about fifteen hours the enemy made no further attempt to molest the convoy, but, as darkness fell, it was estimated that about ten U-boats were attempting to move into attacking positions on the flanks and astern of the convoy.

The first of this enemy force was detected during a hunt by the frigate H.M.S. Essington (Lieutenant-Commander W. Lambert, R.N.V.R.) which attacked with depth-charges and apparently blew the U-boat to the surface. It was visible for a few moments then disappeared, leaving behind a large pool of oil. Contact was not regained and it is possible that this U-boat received severe damage.

Later that same night quantities of oil were brought to the surface during a series of attacks made on another U-boat by H.M.S. Crane and the frigate H.M.S. Foley (Lieutenant-Commander D. E. Mansfield, R.N.). It is considered that this U-boat was probably destroyed.

Further U-boats were attacked by other ships of the escort and, towards morning,

by Liberator aircraft. The results could not be fully observed.

By this time the many and determined assaults by H.M. ships and by aircraft of Coastal Command were apparently having a discouraging effect on the enemy. The U-boats withdrew and for the remainder of the passage made no further attempt to

interfere with the convoy.

But the prolonged battle was not yet over. The enemy adopted new tactics and attempted strong assaults on the convoy with large forces of bomber aircraft, operating from bases in France. The convoy was in a position about 600 miles west of Ushant when H.M.S. Exe sighted a Focke Wulf 200 approaching from ahead. The frigate opened fire, scoring several hits on the aircraft, which made off with thick black smoke trailing from its port engine. Shortly afterwards about fifteen hostile aircraft converged on the convoy and were hotly engaged by H.M. ships, by the guns of the convoy and by aircraft of Coastal Command. Despite the rapid and intense fire the enemy pressed home determined attacks on the convoy with glider bombs.

The battle continued with little respite as fresh enemy aircraft joined in the attack. While the action was at its height the convoy escorts were strengthened by the arrival of the anti-aircraft cruiser H.M.C.S. *Prince Robert* (Captain A. M. Hope, R.C.N.), who also engaged the enemy with anti-aircraft fire.

Meanwhile, aircraft of Coastal Command were engaging the attacking forces. One R.C.A.F. Sunderland sighted seven Focke Wulf aircraft. A few minutes later an R.A.F. Sunderland from a squadron commanded by Wing Commander R. E. G. Van der Kiste, D.S.O., attacked and damaged a Heinkel 177 and then drove off two Focke Wulfs, scoring hits on one of them.

Nearby a Liberator from a squadron commanded by Wing Commander A. E. Clouston, D.F.C., A.F.C., intercepted one Heinkel 177 which took to cloud cover. Within the space of thirty-five minutes this Liberator, disregarding anti-aircraft fire directed at the enemy bombers from our ships, then had separate combats with four Heinkels which were attempting to launch glider bombs. Two of the enemy are believed to have been destroyed, hits were obtained on a third, and the fourth aircraft was forced to jettison its bombs in order to make its escape.

From the first sighting till the last enemy bomber was driven off, the action lasted for nearly two and a half hours. During this time only two ships of the convoy sustained any damage. Several attempts were made to attack the escorting ships, but without success.

During the following day, and while providing close escort, a Liberator engaged and damaged a Blohm and Voss 222 aircraft which attempted to attack the convoy.

With the enemy finally beaten off, the convoy, closely protected by H.M. ships

and by aircraft of Coastal Command, proceeded without further incident.

Conspicuous among the several air actions during the passage of the convoy were those of a Sunderland and a Liberator of Coastal Command, neither of which suffered casualties or damage.

The Sunderland had sighted two enemy aircraft 300 feet above and 500 yards away. The flying-boat climbed in pursuit of them, but they disappeared from time to time into cloud. An He. 177 was the first to come within range as it emerged from a cloud just ahead of the Sunderland, which fired a substantial burst from the front guns.

"We were heartened to see our tracer entering the fuselage of the Heinkel," said the pilot, Squadron Leader W. D. B. Ruth, D.F.C., and bar, of Woking. "The Heinkel dropped a glider bomb, presumably to increase speed, and we saw flames from the bomb change from orange to a deep angry red as it spun down and hit the sea."

A few seconds later the Sunderland sighted two aircraft below it. It dived to intercept a F.W. 200 and once more its gunners opened fire and tracer bullets were seen to strike the enemy, who made for the nearest cloud.

The Sunderland's last action took place five minutes before it was due to set

course for base—this time again with the He. 177 it had previously encountered.
"I was in a good position to attack," said Squadron Leader Ruth, "and my front gunner opened fire from 400 yards, maintaining his burst until I had closed to 200 yards. Other gunners took up the attack as I turned, and we scored many hits before the enemy out-distanced us."

Almost at the same time as the Sunderland's engagement the Liberator, captained by Flying Officer (now Flight Lieutenant) H. Sutherland, of Liverpool, had no fewer than four separate encounters with He. 177s. in thirty-five minutes. "After we had seen one He. 177, which turned away into cloud cover, we sighted four other He. 177s. in loose formation approaching the ships," said Flying Officer Sutherland. "As we were unable to reach their altitude before they passed over the convoy, we followed them through the flak from our ships. While the Heinkels were going over them one of the enemy released a glider bomb, which looked just like a small monoplane. It did the most unusual aerobatics. It went all over the place and it seemed that the Germans were trying to guide it into one of the vessels. It fell into the sea, however. exploded and burned on the surface of the water. Meanwhile, we were closing range and engaged one Heinkel with nose and then rear-guns from approximately 100 yards as it was about to make a bombing run on the convoy. My rear-gunner saw hits on the aircraft, which did not drop bombs, and we did not sight it again. We then came upon another He. 177 which had begun its bombing run. The rear-gunner fired 400 rounds at the enemy and the Heinkel's starboard engines started to smoke. German went into cloud, on fire and losing height."

That He. 177 is believed to have been destroyed and another one was encountered by the Liberator soon afterwards. Fire was exchanged in an inconclusive combat, during which the R.A.F. aircrew could see glider bombs under the Heinkel's wings,

somewhat resembling extra fuel tanks.

"About ten minutes later a further He. 177 was sighted," said Flying Officer Sutherland. "We dived on to its tail and as our nose-gunner opened fire it jettisoned its bombs. Those bombs did not perform aerobatics but went into the sea two miles

from the nearest ship."

In this engagement the Liberator kept on the Heinkel's tail and followed it through cloud, closing to 400 yards. The nose-gunner raked it from stem to stern, causing smoke to appear from its starboard engines. It lost height, nearly to sea level, then straightened out and after some return fire disappeared into low cloud. It, too, was probably destroyed.

The Liberator also met a F.W. 200, which closed on it and opened fire at extreme range. The British pilot took evasive action, however, and shook off his pursuer.

# AIRCRAFT SHADOW ENEMY FLEET

### BLOCKADE RUNNER DESTROYED.

DESTRUCTION of three enemy destroyers and damage to others, as well as the shooting down of a He. 177 by R.A.F. Mosquitoes, was the result of a combined air and sea action in the Bay of Biscay by forces of Coastal Command, U.S. Navy aircraft operating with the command and a task force of British cruisers.

This operation took place a few hours after an enemy blockade runner carrying a cargo of supplies for Germany, was set on fire and destroyed by aircraft of Coastal Command. It is believed that the enemy destroyers had gone out to meet and escort

home the blockade runner.

After the attack on the blockade runner four lifeboats, containing altogether about seventy survivors, were seen a mile or two from the vessel, together with several

empty rafts.

The blockade runner, a fast modern ship of about 5,000 tons, was first sighted on Monday morning by a Sunderland flying-boat in a position about 500 miles west-northwest of Cape Finisterre. The enemy ship, with one gun mounted on the poop-deck, and others on both bows and amidships, was proceeding unescorted on an easterly course at about fifteen knots, apparently inward-bound for a port on the west coast of France. The Sunderland signalled that it had sighted a suspicious-looking vessel and other aircraft on patrol in the vicinity were diverted to the area. The cruisers H.M.S. Glasgow (Captain C. P. Clarke, R.N.) and H.M.S. Enterprise (Captain H. T. W. Grant, R.C.N.) were disposed to intercept, and Coastal Command Halifaxes, Liberators and Sunderlands were despatched. For several hours pending the arrival of this force aircraft of Royal Air Force and Royal Canadian Air Force squadrons shadowed the blockade runner, despite adverse weather conditions.

By dusk the ship was ablaze from stem to stern and sinking after it had been attacked from high and low levels by a force of Coastal Command aircraft, which included Liberators, Sunderlands and Halifaxes. One of our aircraft, a Halifax, did

not return.

Within an hour a R.C.A.F. Sunderland had arrived over the ship and, although damaged by anti-aircraft fire from the vessel, dropped bombs, one of which was seen

to explode close to amidships.

During the afternoon a Liberator from a Czech squadron of Coastal Command engaged the ship, which took sharp evasive action and fired at the aircraft with heavy and light flak. The Liberator attacked immediately at 600 feet and scored hits. One bomb struck the stern, causing a violent explosion, which hurled masses of débris high into the air, and fire immediately broke out. This effective attack crippled the vessel.

"I estimate that when we sighted the blockade runner it was travelling at fifteen knots, and as we went into attack it opened fire at us," the Czech pilot said. "My navigator did some fine work. We saw one bomb hit the ship aft behind the funnel. Immediately vivid red flames shot out and rose about 200 feet. At the same time there was a great explosion which rocked our aircraft 600 feet above. We flew around for five minutes and saw flames spread the entire length of the ship. It was by then fairly well alight but we could not stay to see the full result of our action as trouble had developed in our starboard outer engine. Moreover, we feared that the weather would close down on us, though we succeeded in reaching our base without serious difficulty. Before we left the vessel we directed a Halifax to it."

"The fire continued spreading throughout the next half hour, enveloping the whole vessel from forward of the superstructure to the stern," a Halifax pilot said.

"When we last saw it the ship was listing to port and down at the stern."

The pilot of another Halifax reported that the ship was ablaze from stem to stern.

I saw two large and two small lifeboats," he stated. "The larger type carried twenty-five to thirty survivors each and the smaller ones ten apiece. The enemy crew were wearing yellow-brown lifejackets."

Another Halifax saw several explosions on the vessel, including two large ones from the outer-hatch, accompanied by thick black smoke. Meanwhile a Dutch pilot of further Halifax found the ship law in the vester with flower most high

a further Halifax found the ship low in the water with flames mast high.

The action against the destroyers began shortly after dawn on Thursday, when a Liberator of a U.S. Navy squadron operating with Coastal Command sighted a strong force of enemy destroyers in the approaches to the Bay of Biscay, some 250 miles north of Cape Ortegal.

Immediate orders were given for the aircraft to shadow the enemy fleet and "home" on to its position a British naval force of two cruisers and a Coastal Command striking force of the U.S.N. Liberators. Other aircraft, both Liberators and Sunderlands, were diverted to the position to aid in the shadowing, while a strong formation of Beaufighters was detailed to provide air cover to the British ships, R.A.F.

Mosquitoes carrying out offensive sweeps in the area at the same time.

"It was at 9.20 in the morning that I first sighted a formation of German destroyers," said Lieutenant S. D. Johnson, the captain of the U.S.N. Liberator "V for Victor." I flashed a signal to base and then, scarcely ten minutes later, I saw another formation of German destroyers about fifteen miles away. It was just after dawn and visibility was not too good. We had been ordered to shadow the enemy ships, however, and several times when we broke cloud within two or three miles of one or the other formation all their guns would open up as they had a crack at us. Mostly we kept just out of range."

Great skill and tenacity were shown by the captain and crew of this Liberator under predominantly bad weather conditions. They set course for base only when relieved by another aircraft and after the naval action had been joined, although their prudent

limit of endurance had been passed.

At 11.15 a.m., less than two hours after the first sighting, a Coastal Command Sunderland flying boat sighted three of the destroyers in the haze but lost them again while taking evasive action from a He. 111. A few minutes later a second U.S. Navy Liberator "X" sighted the destroyers, which had joined up and were steaming westwards in two lines ahead at about 16 knots. Both of the Liberators were attacked by enemy aircraft, "V for Victor" easily eluding a Ju. 88, while "X" poured a burst of fire into a F.W. 200 which attacked head on and disappeared overhead. Meanwhile, both the British cruisers had been steaming to intercept the enemy, and shortly before two o'clock in the afternoon the Liberators sighted the cruisers some ten miles away.

"Exactly nine minutes after I first saw the cruisers I noticed apparent explosions in the water near the destroyers," said the captain of "X." It was the splash of

bursting shells as the cruisers fired their first sighting shots.

"There was hard shooting on both sides when the British cruisers appeared," says Lieutenant Johnson, "but the enemy destroyers were very much outclassed. Almost at the start of the battle the Nazi destroyers tried to seek cover behind a smoke screen and soon the muzzle flashes and speeding ships were partly obscured by the smoke."

Then the enemy once again separated into two formations, four of the destroyers

Then the enemy once again separated into two formations, four of the destroyers remaining in contact with the cruisers while the remainder broke off at full speed. A Sunderland was detailed to shadow one of these forces, while a Liberator kept close

above the second.

Meanwhile long-range R.A.F. Mosquitoes patrolled over the Bay of Biscay in support of the operation and an He. 177 bomber was destroyed by one of them in the

early evening.

One Mosquito pilot, Squadron Leader H. E. Tappin, D.F.C., of Southampton, who had as his navigator Flying-Officer Thomas, had been flying near the cruisers and Liberators for more than half an hour when four enemy aircraft were sighted circling near a ship. One of them was recognized as a Heinkel and Squadron Leader Tappin went in to attack. After a combat, in which his own Mosquito was hit by return fire, he sent the Heinkel into the sea.

By now he was separated from the other Mosquitoes and he began to fly his damaged aircraft back from the scene of the battle. Six minutes later Squadron Leader Tappin sighted a Ju. 88 and again went into attack. The Junkers made for

cloud, however, and the Mosquito flew safely back to England.

As dusk was falling and until after darkness the striking force of American Liberators joined the battle. Sweeping in low the aircraft flew through heavy anti-aircraft fire to drop their bombs. In the darkness, however, it was impossible to

make accurate observation of possible damage.

"We made our attack from a thousand feet," said the captain of "L for Love," Lieutenant R. C. Quinlan, "and passed over a destroyer at about 240 miles an hour. As I circled around, my navigator and rear-gunner reported that the bombs had straddled the ship and that only the bows could be seen emerging from the smoke. A second destroyer then opened fire on us and my Liberator was hit: the hydraulic system was put out of action and other parts damaged. In addition, the rear-gunner was slightly wounded."

Before night fell, several of the aircraft noticed enemy survivors in lifeboats,

yellow dinghies and rafts.

"There was a large 'slick' of oil and between thirty and forty men were clustered in two yellow dinghies," said one of the Liberator captains. "They fired flares at us." Another U.S.N. Liberator reported having seen between 130 and 140 survivors in

Another U.S.N. Liberator reported having seen between 130 and 140 survivors in blue watch caps and blue suits wearing life jackets. They were in a covered whale-boat, two lifeboats and ten rafts—some of them tied together.

As one of the aircraft turned for home after the action the crews saw a large dull red glow flaming up on the horizon. "We think it was burning oil," one of

them said.

The engagement was finally broken off long after dark and the shadowing aircraft set course for home. "We continued to fly around the area until the battle was too dispersed and visibility through the smoke and darkness too poor for us to do any good," said one of the American captains.

Only one of our Beaufighters failed to return from this phase of the action.

# COASTAL COMMAND HAS FLOWN 100 MILLION MILES

SEARCHING for U-boats from Arctic waters to near the Equator; striking at enemy shipping off the coasts of Norway, Holland and France, and ranging far over Europe on photographic reconnaissance flights, aircraft of Coastal Command recently completed

100 million miles of operational flying since the war began.

At the outbreak of war in 1939 the Command's aircraft were few in number and slow in speed—the meteorological flight's Gladiators, in fact, were the fastest aircraft in use. To-day, from an early force of Sunderlands, Stranraers, Lerwicks, Ansons, Blenheims, Beauforts and one squadron of Hudsons, Coastal Command has developed a front-line strength which includes very long range Liberators, Fortresses, Halifaxes, Beaufighters, Sunderlands, Catalinas, Wellingtons, Hudsons, Albacores, Mosquitoes and Spitfires.

Despite such adverse weather conditions as severe icing, equatorial tornadoes, Atlantic storms and fog, there has not been a single day since war was declared when an aircraft of the Command was not airborne on an operational sortie. The 50 million mileage mark of operational flying, however, was passed only after two years and ten months of activity; with additional squadrons of faster and longer-ranged aircraft the second 50 million miles have been completed in eighteen months, slightly more than half that time.

From the day war broke out Coastal Command has flown more than 100,000 operational sorties—an average of approximately 2,000 monthly. The monthly average of sorties at the beginning of the war did not reach the 1,000 mark, and while more than 2,000 were being flown during 1941 and 1942 it was not until 1943 that the Command's aircraft almost consistently made more than 3,000 operational flights a month.

The past twelve months have been a period of intense activity for the Command, as it fought with the Royal Navy and the Royal Canadian Navy to impose devastating

losses on the U-boats.

For the past eighteen months there has been substantial improvement in the Command's strength. Very long range Liberators operating from Iceland and the United Kingdom, in co-operation with the very long range Liberators of the R.C.A.F. Eastern Air Command based in Newfoundland, have closed the Atlantic gap which could not formerly be covered by shore-based aircraft. Meanwhile, squadrons of Fortresses are operating from the 'Azores and flying-boats and land aircraft maintain continuous antisubmarine patrols and sweeps from Britain and Gibraltar. "Strike" squadrons of Beaufighters armed with torpedoes and cannons have been regularly attacking shipping off the Norwegian and Dutch coasts and have inflicted severe losses on enemy convoys during those months.

Included in the 100 million miles are several million flown by the Command's Photographic Reconnaissance Unit, whose aircraft, in eighteen months, have covered more than 3,500,000 miles, mainly over targets in Germany and occupied France, although many exceptional long-range flights—to Eastern and Central Europe, and to Africa and

back in one day—have also been undertaken.

As it passes the "100 million" mark, Coastal Command is thus engaged in operational activities far out-stripping its modest performance and limited range in the days when it could sweep only a few hundred miles around the shores of Britain.

# THE PRINCIPLES OF WARFARE

By General Montgomery.

(Disclosed in a talk to war correspondents on his departure from the Mediterranean to assume command of the British Army Group for the Second Front.)

You must win the air battle before you fight the land or sea battle. If you examine the conduct of the campaign we fought from Alamein, through Tunisia, Sicily and Italy, you will find that we never fought a land battle until the air battle was won. That is the first great principle of war. We (the army) never bother about the enemy air at all. The R.A.F. fights that battle for us.

The second great principle is that army-plus-air—the 8th Army and the Desert Air Force, if you like—have to be so knitted that the two form one entity. If you do that the resultant military effort will be so great that nothing will be able to stand up

against us.

The third great principle is that the R.A.F. side of this fighting machine—the army and air are one fighting machine—must be centralized and must be under air force command.

The next principle is that the army commander directs the military effort and the R.A.F. commander with him applies the air effort in accordance with the combined plan

That is to say, there are not two plans, army and air, but one plan, army-plus-air, which is made by me and the air vice-marshal, and the air power is applied by the air officer commanding to fit in with the combined plan, while the army commander directs the military effort.

The army does not command the air, so the two sides, army and air, must be together in the same headquarters, and there must be complete mutual confidence and

trust. Each must understand the problems and difficulties of the other.

But each side must realize the difficulties of the other. The soldier must realize that the air has certain problems—for example, that air power cannot operate without good landing-grounds, and the getting of these always forms part of the army plan.

As regards the use of a striking air force in the land battle, we do use it, and have brought it to a high pitch. We started it in North Africa and we have now got to the stage where, in the Battle of the Sangro, we had a group-captain with us at official headquarters directing the fighter-bombers to targets wanting treatment at that moment.

It is a very big factor—the part of the fighter-bomber in the land battles. Accidents vill happen when our own aircraft shoot up or bomb our own people. We, in the army, expect that, although we do not like it; and when it does happen, the soldier loes not curse.

If you do not win the air battle first, you will probably lose the land battle.

Finally, if you can knit up the power of the army on the land and the power of the air in the sky, then nothing will stand up against you, and you will never lose a pattle. I would never dream of going into battle without the Desert Air Force irmly behind me. Every soldier and airman here knows that. We are one entity.

The integration of army-air has been closely followed by us, and you see the

esult. I doubt if you will find such close integration anywhere else—certainly not n the German Army. They have not got it at all—they are not even beginning to get it. Here we have brought it to a very fine pitch, and we realize we cannot fight successfully without it.

# "NO SHORT CUTS TO VICTORY"—GENERAL MACARTHUR.

GENERAL MACARTHUR, in a recent statement following discussions of successes in Ins sector, in which blockade and air bombardment have played important roles, is reported

as having laid down the following general principles:—

"Japan cannot be defeated by bombing and blockading alone. We must defeat the Japanese Army, and for that purpose our strategy must devise ways and means to bring

our ground forces into contact with his at decisive points.

Short cuts to victory don't exist. It is both useless and misleading to talk of them. "The decisive results of modern war can only be achieved through the combined effort of the ground, naval and air forces. No one or two of them can obtain victory.

"The strongest military element in Japan is the army, which must be defeated before our success is assured. This can only be done by the use of large ground forces.

"It is the team work of a united and well-balanced command, used as a unit, and not the preponderance of any one element that is essential to victory.

"We delude ourselves if we plan otherwise."

# ARMY SIGNALS SERVE THE R.A.F.

WHEN General Sir Bernard Montgomery told a Press conference in Italy that the hand-and-glove partnership of the 8th Army and the Desert Air Force had become so perfect that they were now one single entity he implied not only perfect liaison but a superior communications system.

This network from the joint Army-Air Headquarters to their advanced units and squadrons and between the individual units and squadrons is the responsibility of Air Formations Signals. This is part of the Royal Corps of Signals staffed by Army

technicians.

Advanced Air Headquarters of the Desert Air Force in Italy adjoins the 8th Army headquarters, and here side by side the G.O.C. and A.O.C. plan and direct the battle against the German 10th Army and the spasmodically operated Luftwaffe.

From the operations trailer at Air Headquarters the daily directive is sent to the fighter and fighter-bomber wings, and as the battle changes from hour to hour special offensive patrols or air support in any sector may be ordered. Delay in getting the pilots airborne might mean a reverse in the field.

As the Germans fall back both headquarters necessarily make frequent moves, yet the link between them and the ground and air units in the field must never be broken, and there must always be lines available for operational orders.

Maintenance of this system is the job of hundreds of men of Air Formations Signals, who wear the badge of a famous Yeomanry regiment from which they were

transferred. They bridge the gaps which cannot be covered by R.A.F. signals and supplement by land line, telegraph and express-letter service the overworked wireless

transmitters and receivers.

There are no slack periods for the men of the A.F.S., whether the squadrons are flying all day or whether the aircraft are grounded by bad weather. Telephone exchanges must be manned twenty-four hours a day. The express-letter service or despatch-rider service must be run to schedule, lines must be kept in repair and, if necessary extended at short notice to meet new demands. An average of 2,000 calls a day passed through the main exchange at Desert Air Force alone, and 600 packets were carried daily by the despatch riders.

Each new move of the combined Army-Air Headquarters means a major upheaval for the A.F.S. Hundreds of lorries carry equipment, stores and petrol, with water bowsers, wireless tenders, office trailers, vans, staff cars and jeeps swelling the convoy. Once the initial communications have been laid connecting headquarters with groups wings and squadrons, troops are employed in maintaining and improving them, while

others prepare lines farther forward in anticipation of the next move.

Air Formations Signals include linesmen who build and maintain the vast number of lines required by a mobile air force, operators who man the switchboards, teleprinters and telegraph instruments, technicians who maintain and repair the thousand odd telephones and complicated equipment, and despatch riders who carry the less urgent but no less important orders.

When the advance parties of a group, wing or squadron are ordered forward a composite force of linesmen, operators and technicians accompanies each advance party. They build a portable exchange, connect it to the trunk lines, lay cables to each squadron, and instal telephones and teleprinters. Communications are complete and working

when the squadron arrives at the airfield twenty-four hours later.

The Desert Air Force require 300 miles of cable for its telephone lay-out, excluding the main overhead trunk routes. Between El Alamein and Tobruk alone 1,060 miles

of field cable were used on Air Force communications.

The terrain over which the battle is being fought in Italy has presented new problems to A.F.S. Gone are the days when cables could be laid straight across the flat desert to landing-grounds near each other. Instead, the men are faced with a complicated system of lines bombed and broken, with mountainous country impassable to vehicles, with landing-grounds widely dispersed, so that field cable is useless for telephonic communications. Nevertheless, the Desert Air Force has never lost touch with all its units, often by the use of old power lines, telegraph or railway routes, or by connecting light overhead lines.

# THOUGHTS ON THE NEW WORLD

By Field-Marshal Smuts.

[This is a reproduction in full of the address given at a private meeting of the U.K. branch of the Empire Parliamentary Association on 25th November, 1943. This address has been widely discussed and criticized. It is placed on record in this Journal in order that those who have not read the full text may have a further opportunity of doing so, and those who have may read it again and again. More enlightened discussion on this speech is likely to follow as time passes.—Editor.]

I INTEND to have a general informal talk with you this afternoon. I have no set opinions; I have no dogmatic beliefs to place before you; I am going to put before you certain lines of thought which are running through my own mind. I think the times in which we live do not really permit of very rigid fixed opinions, or of any dogmatic outlook on life or on the problems before us. We are facing to-day probably the most perplexing, complicated human situation that has confronted the world for many generations, and anybody who thinks he has a panacea at his command to deal with these

problems must either be sub-human or superhuman. I simply want to suggest certain lines of thought, and you must not hold me responsible for them hereafter.

There are two dangers that face us in a situation such as ours to-day. One is the danger of over-simplification. In a world where the problems are so complex we may feel tempted to over-simplify and thus falsify the real character of the problems before us and miss the real solutions. The other danger is what I may call the danger of following slogans or catchwords, and so missing the real inwardness of the problems before us

Let us look at these two dangers, which are really the same, though I wish to keep them separate for the moment. Let me refer briefly to the first danger of over-simplification. Where you are faced with a situation and problems such as we are faced with you dare not over-simplify. In such circumstances you can only proceed towards a solution step by step in the old empirical British way, for if you begin to theorize and rationalize and simplify you are lost.

# No Peace Conference?

I think particularly of several occasions when we have been confronted with such a situation. Take our situation at the time of the last peace. Twenty-five years ago we had before us very grave problems, but we proceeded to solve them in a few months. The Peace Conference met in January, 1919, and it dissolved in May. Within that period, by a process of side-tracking real issues and over-simplifying others, we produced the peace treaty, and I am sure if we were to follow the same procedure in the situation before us to-day in the world, or the situation which will be before us at the end of this war, we shall move to even greater disasters than we have seen in the past.

When I look at the sort of problems that we shall have to deal with at the end of this war, the problems of the new Europe and the new world, I doubt whether any peace conference will be able to settle those questions in a reasonable time unless it proceeds by a process of over-simplification and falsification. I am myself doubtful whether we shall ever come to a peace conference at all at the end of this war. It may be that we may be faced with questions so vast, so complicated, so difficult and intractable, that in the end we shall have to be satisfied with making a pretty comprehensive armistice dealing with the general military question of ending the war, and leave the rest of the problems to a long series of conferences, to a long process of working out solutions without coming to any general peace conference at all.

out solutions without coming to any general peace conference at all.

That is one sort of situation that I consider probable—that we may never come to a peace conference at all, and that we may have to be satisfied with a comprehensive armistice on a basis of unconditional surrender, an armistice which will open the door to a long series of investigations and researches, which may take a long number of years before finality is reached.

#### RACE AND COLOUR PROBLEM.

I am also thinking, when I talk of over-simplification, of the situation which exists in our own British Empire. I do not think that either to-day or in the near future you could have any more complicated situation than that in our own group, quite apart from the general world situation. Take one particular problem—the problem of race and of colour, which is a root problem in our Empire. There are no doubt people who have a patent solution for that sort of problem; they have a general formula, they have a simple standard procedure for its solution. But it will not be the right one. To my mind we have there in the Empire a problem which is going to test our wisdom, our farsightedness, our statesmanship, our humanity, probably for generations before any solution can ever be reached. You can have no simple, standardized solution. You can have no simple, straightforward approach to a problem such as the vast diversity of race and colour, culture and levels of civilization existing in our Empire. That is the sort of problem with which we have dealt in the past, and which will face us even more in the future. It calls for continuous experiment, for variety of treatment, and for very prolonged practical experience before any satisfactory solution can be reached.

I mention this because I know it is one of the questions on which people are

thinking deeply and with which they are very much concerned nowadays. Many wellmeaning people think you can by short cuts arrive at a solution. But you will not Simplification will not help you. Simplification will mean falsification of the real difficulty. It is only by a long process of experience and patient experiment that you can deal with situations such as these.

### VALUE OF LEADERSHIP.

Take my own continent, with its problems of colour and race in West Africa, in East Africa, in South Africa. Everywhere you have great differences of culture and conditions generally, and in all these cases you can only proceed empirically, making experiments, trying to follow lines that suggest themselves as practicable and wise in the particular circumstances, and avoiding general preconceived standardized solutions.

Again, take the other danger I have referred to—the danger of following slogans and catchwords. To-day we hear a great deal of democracy. We are fighting the battle of democracy. We are fighting for freedom. Of course we do. But these words become clichés, they become catchwords and vague slogans, which in the end do not lead you very far. Our opponents have another set of formulas. They fight for the leadership principle, the Führer principle. With them the objective has also become a catchword, a cliché.

It must be quite clear to anybody who thinks of the real problems that face us that you will only get to practical solutions in the end if you have a good mixture of both democracy and freedom on the one hand, and of leadership on the other. no use simplifying your problem and using one simple formula, and thinking that you will reach the solution in that way. Here in this country you are a great democracy, perhaps the most outstanding democracy of history; but here too we have learned what leadership means in a great emergency. Without leadership, freedom by itself will not help you. Freedom, like patriotism, is not enough.

I mention this simply as a case where you cannot blindly follow one general trend of thought alone. The world is much too complex, and the problems to be solved are much more complex too. In the difficulties before us we shall want both leadership and democracy. We shall want not only freedom but also discipline. Discipline is

just as essential. We shall have to bear that in mind in the days before us.

#### PROBLEM OF POWER.

I mention another case of one-sided simplification and of following one trend of thought: I remember before the last war, and during the last war, we were very much concerned with the danger of what was called the "balance of power." We wanted to get away from it because it was the old system in Europe that had led to wars before. We were determined to avoid the balance of power, and so we went in for another formula. We wanted a universal all-in system of security, a system of universality and of idealism; and we followed it in the League of Nations. We recognized equality, we brought all the nations together, and in the end there was a very large number of In that way we thought we would avoid the problem of the balance of power, but we fell into the opposite danger. This war has taught us not only that idealism is not enough, and that universality is not the solution for our security problem, but it has also taught us that we cannot get away from the problem of power.

That is where this greatest war in history had its origin. We have found that all our idealism, all our high aspirations for a better world and a better human society. stand no ghost of a chance unless we reckon with this fundamental factor, and we keep power well in our minds when we search for the solution of the problem of security. The question of power remains fundamental, and it is, I think, the great lesson of this

war. Peace unbacked by power remains a dream.

Therefore, looking at the situation that faces us in the near future, I would say that in arranging for a new world organization for security, as we shall have to do, we shall have to provide not only for freedom and democracy, which are essential, but we shall also have to provide for leadership and for power. If we leave the future security of the world merely to loose arrangements and to aspirations for a peaceful world, we shall be lost.

#### TRINITY OF NATIONS.

We shall have to attend to the lesson we have learned, and see to it that in the new organization to preserve peace for the future we give a proper place to leadership and to power. To my mind that can be done much more effectively than in the Covenant of the League of Nations, by giving a proper place to the three great Powers that are now at the head of our United Nations.

Great Britain, the United States, and Russia now form the trinity at the head of the United Nations fighting the cause of humanity. And as it is in war, so will it have to be in peace. We shall have to see to it that in the new international organization the leadership remains in the hands of this great trinity of Powers. These three Powers must retain the leadership in war and in peace, and be responsible in the first instance for the maintenance of security and for the preservation of world peace. And this primary responsibility will not be affected by any duties resting on the rest of the United Nations.

I think it was largely because in the League of Nations as constituted after the last war we did not recognize the importance of leadership and power that everything went wrong in the end. What was everybody's business in the end proved to be nobody's business. Each one looked to the other to take the lead, and the aggressors got away with it. Leadership had not been firmly settled by the constitution of that organization, and it all went to pieces in the general hesitation and confusion. And that is why we are fighting this war now. To my mind we shall have to see to it that in the new organization there is leadership and there is power, both in their proper place and exercising their proper function among the United Nations.

### THE LEAGUE COVENANT.

Apart from this flaw, I should say, judging from my own reading of events, that there was nothing much amiss with the League of Nations in other respects. It was a well-thought-out scheme, and it worked well, and for the first ten years of the League it was a surprising success. Until aggression and the question of power turned up, the League of Nations functioned very well indeed. It looked after matters of social welfare, health, labour, and other social activities of mankind, in a way which could not be bettered, and from that point of view the League system remains, on the whole, a good and proper one to continue in the future. But when it comes to questions of world peace, security and aggression, for which we did not make sufficient provision, we shall have to revise the Covenant on the lines I have suggested.

Just one word more about the League of Nations, and I pass on to other subjects. I think one other flaw or weakness in the League organization after the last war was the fact that we did not pay sufficient attention, or indeed any particular attention, to the economic question. The Covenant much too exclusively followed political lines. We looked too much to political solutions. We have learned our lesson there, too. Just as we have learned our lesson that power is fundamental in the international order, so we have learned our lesson that unless the new organization which we are going to erect after this war attends efficiently and well to the economic conditions among mankind, we shall again get into the troubles which ruined world recovery after the last war; and I hope that our new organization will have its economic activities as properly defined and regulated as its political activities.

I think that so far you will be inclined to agree with me. I now come to much more explosive things, for which I hope you will not hold me responsible hereafter. I am suggesting some new lines of thought. We have moved into a strange world, a world such as has not been seen for hundreds of years, perhaps not for a thousand years. Europe is completely changing. The old Europe which we have known, into which we were born, and in which we have taken our vital interest as our Mother-Continent, has gone. The map is being rolled up, and a new map is unrolling before us. We shall have to do a great deal of fundamental thinking and scrapping of old points of view before we find our way through that new Continent which now opens up before us.

Just look for a moment at what is happening, and what will be the state of affairs at the end of this war. In Europe three of the Great Powers will have disappeared. That will be quite a unique development. We have never seen such a situation in the

modern history of this Continent. Three of the five Great Powers in Europe will have disappeared. France has gone, and if ever she returns it will be a hard and a long

upward pull for her to emerge again.

A nation that has once been overtaken by a catastrophe such as she has suffered reaching to the foundations of her nationhood, will not easily resume her old place again. We may talk about her as a Great Power, but talking will not help her much. We are dealing with one of the greatest and most far-reaching catastrophes in history, the like of which I have not read of. The upward climb will be a bitter and a long one. France has gone, and will be gone in our day and perhaps for many a day.

Italy has completely disappeared, and may never be a Great Power again. Germany will disappear. Germany at the end of this war will have disappeared, perhaps never to emerge again in the old form. The old Bismarckian Germany may perhaps never rise again. Nobody knows. The Germans are a great people, with great qualities, and Germany is inherently a great country, but after the smash that will follow this war Germany will be written off the slate in Europe for long, long years, and after that a new world may have arisen.

THE NEW COLOSSUS.

We are therefore left with Great Britain and with Russia. Russia is the new Colossus in Europe—the new Colossus that bestrides this Continent. When we consider all that has happened to Russia within the past twenty-five years, and we see Russia's inexplicable and phenomenal rise, we can only call it one of the great phenomena in history. It is the sort of thing to which there is no parallel in history, but it has come about. These are questions of power which I say we should not neglect. Russia is the new Colossus on the European continent. What the after effects of that will be nobody can say. We can but recognize that this is a new fact to reckon with, and we must reckon with it coldly and objectively. With the others down and out, and herself the mistress of the Continent, her power will not only be great on that account but it will be still greater because the Japanese Empire will also have gone the way of all flesh, and therefore any check or balance that might have arisen in the East will have disappeared. You will have Russia in a position which no country has ever occupied in the history of Europe.

Then you will have this country of Great Britain, with a glory and an honour and a prestige such as perhaps no nation has ever enjoyed in history; recognized as possessing a greatness of soul that has entered into the very substance of world history. But from a material economic point of view she will be a poor country. She has put in her all. This country has held nothing back. There is nothing left in the till. She has put her body and soul and everything into it to win the battle of mankind. She

will have won it, but she will come out of it poor in substance.

The British Empire and the British Commonwealth remain as one of the greatest things of the world and of history, and nothing can touch that fact. But you must remember that the Empire and the Commonwealth are mostly extra-European. Those are the overflows of this great British system to other continents. The purely European position of Great Britain will be one of enormous prestige and respect, and will carry enormous weight, but she will be poor.

#### RELATIONS WITH U.S.A.

Then outside Europe you have the United States, the other great World Power. You will therefore have these three Great Powers: Russia, the Colossus of Europe: Great Britain with her feet in all continents, but crippled materially here in Europe; and the United States of America with enormous assets, with wealth and resources and potentialities of power beyond measure. The question is how you are going to deal with that world situation. I am just painting before you the picture of the new world that we shall have to face, which will be something quite unlike what we have had to deal with for a century, or indeed for centuries.

Many people look to a union or closer union between the United States of America and Great Britain, with her Commonwealth and Empire, as the new path to be followed in the future, in this world which I am describing as facing us. I myself am doubtful about that. I attach the greatest importance to Anglo-American collaboration for the

tuture. To my mind it is, beyond all doubt, one of the great hopes of mankind. But I do not think that, as what I might call a political Axis, it will do. It would be a one-sided affair. If you were to pit the British Commonwealth plus the United States against the rest of the world, it would be a very lopsided world. You would stir up opposition and rouse other lions in the path. You would stir up international strife and enmity which might lead to still more colossal struggles for world power than we have seen in our day. I do not see human welfare, peace, security along those lines.

So we come back to where we started—namely, the trinity. We shall not act wisely in looking to an Anglo-American union or "axis" as the solution for the future. We shall have to stick to the trinity that I have referred to. I think we must make up our minds to that as the solution for the present and the near forseeable future.

#### Union with Smaller Democracies.

But then I am troubled with this thought—and this is the explosive stuff I am coming to. In that trinity you will have two partners of immense power and resources—Russia and America. And you will have this island, the heart of the Empire and of the Commonwealth, weak in her European resources in comparison with the vast resources of the other two. An unequal partnership, I am afraid. The idea has repeatedly floated before my mind, and I am just mentioning it here as something to consider and to ponder—whether Great Britain should not strengthen her European position, apart from her position as the centre of this great Empire and Commonwealth outside Europe, by working closely together with those smaller democracies in Western Europe which are of our way of thinking, which are entirely with us in their outlook and their way of life, and in all their ideals, and which in many ways are of the same political and spiritual substance as ourselves.

Should there not be closer union between us? Should we not cease as Great Britain to be an island? Should we not work intimately together with these small democracies in Western Europe which by themselves may be lost, as they are lost to-day, and as they may be lost again? They have learned their lesson, they have been taught by the experience of this war when centuries of argument would not have convinced them. Neutrality is obsolete, is dead. They have learned the lesson that, standing by themselves on the Continent, dominated by one or other Great Power, as will be the future position, they are lost. Surely they must feel that their place is with this member of the trinity. Their way of life is with Great Britain, their outlook and their future is

with Great Britain and the next world-wide British system.

#### STABILIZING FACTOR.

We have evolved a system in the Commonwealth which opens the door for developments of this kind. To-day in the Commonwealth we have a group of sovereign States working together, living together in peace and in war, under a system that has stood the greatest strain to which any nations could be subjected. They are all sovereign States, they retain all the attributes and functions and symbols of sovereignty. Other neighbouring nations, therefore, living the same way of life, and with the same outlook, can with perfect safety say: "That is our group; why are we not there? With full retention and maintenance of our sovereign status, we choose that grand company for our future in this dangerous world."

It is naturally a question for the States of Western Europe to settle themselves. It is for them to say whether in the world as they have learned to know it, as history has proved it to be, it is safe for them to continue in the old paths of isolation and neutrality, or whether they should not help themselves by helping to create out of closer union with Great Britain a great European State, great not only in its world-wide ramifications, great not only as an Empire and a Commonwealth stretching over all the continents, but great as a power on this Continent, an equal partner with the other

Colossi in the leadership of the nations.

I think this trinity will be the stabilizing factor, the wall of power behind which the freedoms and the democracies of the world can be built up again. It will be the protecting wall. But I should like to have that trinity a trinity of equals. I should like to see all three of them equal in power and influence and in every respect. I should not like to see an unequal partnership.

#### LESSONS LEARNED.

I call this very explosive stuff, but we are living in an explosive world. I want you to bear in mind that we are living in a world where we are forced to fundamental thinking and to a fundamental revision of old concepts. The old world that we knew has gone, and it will not return. To my mind it is a question whether those who think alike and feel alike, whose interests and whose safety rest on the same broad human political basis, should not be together in building up that splendid trinity to which we look forward for the future leadership.

So much for Europe, and I am saying nothing about America and the Axis. It is all very speculative, and I am saying nothing dogmatic, but I am sure we shall have to do a great deal of fundamental thinking. I shall not be surprised to find that not only in this country but elsewhere outside this island, and especially in Western Europe. many thoughtful people are thinking in the same direction. They have learned much in this, the bitterest experience of their lives and the lives of their countries, and their minds are probably following some such line of thought as that to which I am giving

expression.

Let me say a few words about the Commonwealth and Empire, because after all we remain a very great world community. It is not only the spiritual power which we command as no other group on earth commands. It is not only that we possess that strength of soul, that inner freedom which is greater than all the freedoms of the Atlantic Charter, but we are also a very powerful group, scattered though we are over the world. And we must look to our own inner strength, our inner coherence, our system, our set-up and pattern, to see that it is on safe lines for the future.

What is the present set-up in our group? We are an Empire and a Commonwealth. We are a dual system. In that dual system we follow two different principles. In the Commonwealth we follow to the limit the principle of decentralization. In the Commonwealth this group of ours has become wholly decentralized as sovereign States. The members of the group maintain the unbreakable spiritual bonds which are stronger than steel, but in all matters of government and their internal and external concerns they are sovereign States.

#### OUR COLONIAL EMPIRE.

In the Colonial Empire, on the other hand, we follow quite a different principle. We follow the opposite principle of centralization. And the centralization is focused in this country, in London. The question that arises in my own mind, looking at the situation objectively, is whether such a situation can endure. To have the Empire centralized and the Commonwealth decentralized, to have the two groups developed on two different lines, raises grave questions for the future. Is this duality in our group safe? Should we not give very grave thought to this dualism in our system? I hope you will forgive my doubts, but I do not speak critically here. I am not

I hope you will forgive my doubts, but I do not speak critically here. I am not a critic of the Empire. I am just thinking objectively and giving expression to my concern. I am not out to criticize. But I know as a fact that wherever I have gone in the Colonial Empire I have found criticism of this situation. Your own British people outside this island, living in Crown Colonies, are very critical and restive under this system which is centralized in London. It is the nature of the beast, you know. The Britisher resents being run by others and from a distance. The question is whether there should not be an approach between the two systems so as to eliminate gradually this dualism and have a closer approach between the two, and bring Empire and Commonwealth closer together.

Following that line of thought, it has seemed to me that our colonial system consists of too many units. If there is to be decentralization you will have to decentralize from the Colonial Office in London and give administrative powers of all sorts, and all degrees, sometimes to very small units, or to some still in a very primitive stage of

development, and that might be a risky thing to do.

#### REMOVING A BURDEN.

Our colonial system consists of a very large number of units in all stages of development, and if there is to be decentralization and devolution of power and authority. It

becomes in my opinion necessary to simplify the system, to tidy it up, to group smaller units, and, in many cases, to do away with units which have simply arisen as an accident by historic haphazard. They should never have existed as separate units, and in many cases their boundaries are quite indefensible. You know how this great show has grown up historically, by bits of history here and there, without any planning, and, of course, inevitably so. But the time has come, or the time may be coming now, when it is necessary to tidy up the show, to reduce the number of independent colonial units, to abolish a number of these separate administrations scattered pell-mell over the Colonial Empire, and to reduce the consequent expenditure which is a burden on the local peoples, many of them very poor, undeveloped, and with very small resources. It is a heavy burden on them, and their slender resources might be devoted to better purpose than carrying on a heavy administrative machine, perhaps beyond their capacity.

As I say, it is a question whether we should not abolish a number of units, and group others, and so tidy up the show. Then in such a case you can decentralize, and you can safely give larger powers and greater authority to those larger groups that you will thus create. Where it might be unsafe and unwise to give larger authority to a number of small units, it might be safe and wise, and the proper course, to give authority and to decentralize administrative power in the case of larger units grouped

under a better arrangement.

#### REGIONAL DOMINIONS.

I do not wish to go into details, but the case I know best is my own African continent, which contains a large number of British Colonies and Territories. There it seems to me quite a feasible proposition to group the British Colonies and Territories into definite groups. You have West Africa, you have East Africa, and you have Southern Africa. It is quite possible to group those Colonies into larger units, each under a Governor-General, and abolish not a few of them that need not continue to enjoy a separate existence. In that way you will overcome the difficulty of the highly centralized system centring in London, which is irksome to the local people, is perhaps not serving their highest interests and their best development, and gives outsiders the occasion to blaspheme and to call the Colonial Empire an Imperialist concern, run in the economic interests of this country.

As you will solve this problem of centralization in the Colonial Empire you will also solve another equally important problem. And this brings me to the Commonwealth. In many of these cases of colonial reorganization where there will be new and larger colonial groups under a Governor-General, you will find that it is quite possible to bring these new groups closer to a neighbouring Dominion, and thereby interest the Dominion in the colonial group. In this way, instead of the Dominion's being a show apart, so to say, having little or nothing to do with the Empire, and taking very little interest in it, these regional Dominions will become sharers and partners in the Empire. You will tighten up your whole show; you will create fresh links between the Empire and the Commonwealth, and create a new interest and life in the system as a whole. You will create better co-operation, and you will bring to bear on the problems of these colonial groups the experience and resources and leadership of the local Dominions, too. In this way you will tighten up your whole system, and instead of being two separate systems, the one decentralized and looking after its own affairs, and the other centralized and centred in London, you will have a much more logical co-operation and statesmanlike arrangement. Perhaps I am now over-simplifying here, but I simply put this picture before you as it has developed in my mind, the picture of a larger, more co-operative world community. The time is coming when the colonial system will have to be simplified and tightened up, and to a large extent decentralized, and when the Dominions will have to be called in to play their part also in the new set-up.

#### Suggested Conferences.

Not only Great Britain and not only London, but the Dominions also should, by loose consultative arrangement, have a hand in this new colonial pattern, and the Dominions should also bring their resources and their experience to bear in the development of the Colonies. I think the suggestion is very well worth considering. Perhaps

the new link could best be introduced by means of a system of regional conferences, which would include both the local Dominion and the regional colonial group of the area concerned. Perhaps to begin with nothing more is needed than merely an organized system of conferences between them, where they could meet and exchange ideas, and by means of which they could settle common policies, discuss common interests, and in that way link up the Dominions and the Colonies with the Mother Country in a common, more fruitful co-operation.

These, in broad outline, are our future arrangements as I see them—not only for our own future but for the future of the world—and I want to see our group strengthened and co-ordinated and elements of risk and of danger removed from its path. I want to see it launched forth after this war on the new paths of history with a better prospect of co-operation and collaboration among all its parts. I want a common pride to develop on the basis of better co-operation and understanding. I want the Dominions to take both interest and pride in the Colonies within their sphere, and in that way to create, in our great world-wide Commonwealth, a new esprit de corps, a common patriotism, and a larger human outlook.

#### EXAMPLE TO THE WORLD.

These are some of the explosive thoughts that I have taken the liberty to mention here this afternoon. This is a very good and proper occasion for ventilating such ideas. I am speaking to very responsible men, I am speaking to an audience whom I greatly respect and honour. I am speaking to men who are responsible for what is probably the largest human community that has ever existed in this world. I see that we are moving to a point in history when there will be great changes in the world. when the new world situation will call for changes among all the nations such as they have never faced before, and I have asked myself whether this is not the time for us. too, to look into our own household a bit. It has done wonderfully well in this war. It has done very well both in peace and in war, but not least in this war. It has done miracles, and I want those miracles to continue. I want us on the future paths of history to have a fair clean run, because I think we mean a great deal to the world. I think this world needs our British system. I think we, in our group, play a part which is essential and vital to the future of mankind, and whatever we can do to put our own house in order, to remove anomalies, to remove the sources of internal friction or of misunderstanding, is a service not only to our group but to mankind at large. and must have its effect on the rest of the world.

Surely people all over the world will look to this group of peoples comprising one-fourth of the human race, and see how they guide their destinies in peace and war along human lines of mutual helpfulness. Surely such a spectacle must have a farreaching influence for good. I look upon this Empire and Commonwealth as the best missionary enterprise that has been launched for a thousand years. This is a mission to mankind of good will, good government and human co-operation, a mission of freedom and human helpfulness in the perils that beset our human lot.

#### HELPING HUMAN DESTINY.

Where we are helping ourselves in ways such as I have mentioned, putting our house in order on lines I have suggested, or on similar lines, we shall not only be serving our own cause and strengthening ourselves internally, but we shall be making our contribution to human destiny, and to the promotion of those ideals for which our young men are fighting and bleeding and dying to-day. I think we shall be serving that greater human cause which we all have at heart, and for which we are prepared to make such sacrifices in our day.

I utter no dogmatic conclusions, I have no set ideas, I am simply giving you the lines of thought that run in my mind when I survey the new situation facing us in the world. I want us not only to think about the other countries who are to-day labouring in dire trouble all over the world, but also to pay some attention to our own show, which I think also requires a little looking after, and especially at a time like this, when a new world is in the making.

#### "FROM SOMME TO SANGRO"

#### THE STORY OF THE "MOTHER HUBBARD" SQUADRON

THE origin and meaning of Royal Air Force squadron crests is sometimes a mystery.

One of the most famous of fighter squadrons, now in Italy with the Coastal Air Force, has a crest representing a dog barking into an empty cupboard. The answer is simple. Formed originally in July of 1917, the squadron went to France on New Year's Day, 1918, commanded by Major Hubbard. Naturally the C.O. was known as "Old Mother Hubbard," and what more natural than that old Mother Hubbard's dog and the cupboard should live until the present day as the squadron crest.

To-day this famous squadron, one of the first in France with the Advanced Air Striking Force in 1939, and last out in 1940 (thirty-seven of the ground crew were lost

on the Lancastria) have shot down 312 enemy aircraft.

In Italy the squadron is looking after the safety of our sea convoys and is carrying out sweeps over Yugoslavia and Albania. Appropriately, one of their pilots is a Yugoslav. He was a flight-sergeant in the Royal Yugoslavian Air Force and had exciting encounters with Me. 109s. during his country's fight against the Germans.

When that first fight was over he stole an aircraft and flew to Athens. That was nearly three years ago. Now he is seeing his native land for the first time since his escape, and there is no more eager Coastal Air Force pilot on the sweeps with which Air Vice-Marshal Sir Hugh Pughe Lloyd is bringing his Spitfire squadrons to bear in

support of the Partisans.

After what they came to regard as their private war with the Germans from September, 1939, until May, 1940, the squadron fought their way back to the French Biscay ports during the last six eventful weeks in France. They went home to re-form and take a leading part in the Battle of Britain. Before the end of the year they were on their way to the Middle East and they are now the oldest fighter squadron in the Mediterranean zone, except, of course, the squadrons who were in the Middle East when war broke out. They fought in the Wavell and Auchinleck campaigns, took part in the defence of Tobruk, and twice nearly got caught in the German bag at El Adem. In the final African triumph from El Alamein to Cape Bon they were at one time flying day and night, but eventually they held a unique role as night-fighter free-lances, acting entirely on their own.

"Cat's eyes" Joyce, acknowledged to be one of the greatest of all night-fighters, was the ace of these freelances, and he was the third New Zealander to win fame for the squadron. First was Cobber Kain, whose exploits in France helped to put the squadron on the front pages of the world's Press. Kain died by accident when he was

saying "farewell" to his comrades in France by a joy flight over their base.

Then there was Derek Ward, another New Zealander who, as the C.O., laid the foundation of the squadron's night-fighting reputation, and died circling some of his pilots who had been shot down near Gambut. Squadron Leader Ward, D.F.C. and Bar, had as one of his sergeant pilots E. L. (Nipper) Joyce, D.F.M., who shot down three Ju. 88's in five minutes over El Alamein and who in a year rose to command the squadron and to lead them in their final night forays over Cape Bon.

Two "Maoris" have assisted in perpetuating the New Zealand tradition founded by Kain. One was Pilot Officer Ted Bennett, brother of one of the most notable "Maoris" on service, Lieut.-Colonel Charles Bennett, who commanded the Maori Battalion in Freyberg's out-flanking movement at the Mareth Line; and the other, Flight Sergeant

Karatau, first Maori to fly a Spitfire in action, who is still with the squadron.

Squadron Leader Joyce, incidentally, was the second N.C.O. to rise to command the unit, the first being Squadron Leader "Monty" Ellis, who was a contemporary of Kain in France—and who shot down three 88's before breakfast at Tobruk and was then kept waiting for a long time in the queue for his scanty meal!

Many stories could be written round the personality and achievements of pilots who have passed through the squadron in their progress from the Somme to the Sangro. There was a tale of the late Sergeant Sands, an Australian, who shot a sentry when

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passing through an Afrika Korps camp, and a magnificent story of endurance by a Bermondsey boy, Flight Sergeant George Edwards, who spent nine nights in his dinghy in the Mediterranean, living on three sips of water and two Horlick tablets a day. He was forced down near Sicily and drifted to within fifty miles of Tripoli before he was rescued.

No squadron can boast a history with more incident. The ground crews were sent post-haste from Britain to Egypt in the dark days at the end of 1940 as passengers on H.M.S. Manchester, when on her way east in the Mediterranean, was involved in the Battle of Matapan. The squadron's ground crew are believed to be the only airmen of the R.A.F. ever to be involved in a major naval action. Many shells from the Italian battle fleet fell near the Manchester.

Once, at El Adem, the crews were sitting on the airfield and looked up to see the

German Panzers just coming over the escarpment. But they got away.

In three years from Heliopolis to Southern Italy they moved camp sixty-five times. To-day the squadron carries on the great tradition forged in France and Flanders in 1918 when, as part of the Ninth Air Brigade, the "originals" were personally con-

gratulated by General Foch.

In delving into the diary of 1918 one is struck by the laconic note which marks the entry recording the Armistice. This reads: "November 11, Monday. Instructed that hostilities will cease 11 a.m. and that no machine will proceed east of balloon lines. Unique display of Very lights and klaxon horns at 11 a.m. Also exhibition of flying and loops by Lieut. Strieber. Parties despatched to Boulogne and Amiens." One can imagine the parties that night! One other memory relating to the last war is that there were so many American pilots connected with the squadron that reunions were held later in New York.

Disbanded soon after hostilities ceased, the squadron was re-formed in 1937, when Group Captain E. S. Finch, now S.A.S.O. of one of the most important groups of the Coastal Air Force in the Mediterranean, was closely associated with the unit's revival. Practically all their fighting has been on Hurricanes, Spitfires being issued after the end of the North African campaign.

#### **NIGHT PHOTOGRAPHY**

NIGHT photography has played a very important part in making possible Bomber Command's saturation attacks on Germany's industrial cities. Every advance in modern bombing tactics, every improvement in Pathfinder technique, has involved the study of many hundreds of night photographs, taken in the very act of bombing. They provide indisputable and scientific evidence, almost immediately after each attack, not only of the probable results of bombing but of much else that will be of great assistance in the

planning of future attacks.

Night photography is now a completely automatic process. The camera is put into every aircraft of Bomber Command before it makes an operational flight. A member of the photographic section of the ground staff sets the controls of the camera and adjusts them according to the height from which the aircraft is to bomb. The armourer—also a member of the ground staff—installs the photo flash, a magnesium flash-bomb which will explode above the target and illuminate it just before the bombs hit; and from then on until landing-time no one in the crew need concern himself with the camera, except for one moment when a warning light shines in front of the pilot to show him that the photographs are being taken.

Everything happens automatically when the bomb-aimer presses the bomb firing key. The bomber returns with an automatic record of the area within which the bombs fell, together with much other useful information about the extent of the fires on the target at this stage of the attack, about what evasive action was taken by the pilot, and on occasion about the enemy's decoy fires, the operation of the Pathfinders' target

indicators, searchlight concentrations, flak battery positions, and very occasionally some

preliminary bomb-damage assessment.

Night photography has been continuously developed to its present stage of efficiency since it was first used on operations in 1940—the first successful operational night photograph was of a railway yard bombed during the Battle of France on the night of 31st May. 1040.

May, 1940.

The principle of air photography by night is simple in itself, and all that is required is to synchronize, by one means or another, the opening of the camera with the explosion of magnesium flash dropped by the aircraft. This synchronization is effected in the simplest fashion, by leaving the camera shutter open for a few seconds before and after the explosion of the flash, which lasts for about a thirtieth of a second. But the R.A.F. had a much harder problem to solve in 1940; a method had to be devised of taking night photographs at operational heights, which might be well over 20,000 feet, and under operational conditions, with the whole crew busy and usually at the tensest moment of the attack. It has taken much experiment and ingenuity to make the process as automatic and the photographs as clear as they are to-day.

The flash-bomb is in itself an ingenious piece of mechanism. It looks like a small bomb, about three feet long and four and a half inches in diameter. It is ingeniously fused to explode at about half the height at which the aircraft is flying. Its tail, rather smaller than that of the normal bomb in relation to its size, is contrived to make the flash trail farther behind the aircraft than would an ordinary bomb; this is so that the flash will not explode directly below the aircraft but at a sufficient distance behind it to illuminate, without being actually within, the camera's field of view. The first flashes only developed three or four million candle-power; nowadays, although this is difficult to measure within a million or so, the flash develops, at the peak of its intensity, some 170,000,000 candle-power.

The vital photograph is that taken when the flash goes off, because this is calculated to be the moment when the bomb, falling faster than the flash, is just about to hit the target. This essential photograph is called "the bombing frame." Because the flash only lasts for a thirtieth of a second, and the camera shutter is open for a second or two before and after this, the film will show an instantaneous photograph of the ground superimposed on a photographic record of any source of light on the ground, such as

fires, gun flashes or searchlights.

As the aircraft is moving while the film is exposed, a spot of light naturally comes out as a streak across the film, and if the aircraft has been taking violent evasive action this streak may be curved or looped. Only a trained interpreter can make any sense of the apparently inexplicable marks which are made in this way, but to him they reveal a great deal. Almost any source of light on the ground will be recorded; an ordinary electric light would show up plainly at 20,000 feet.

Before and after the bombing frame is made the camera also takes other photographs; the film automatically winds over and the shutter is automatically opened and closed several times while the aircraft is over the target. Fires, bomb bursts, decoy fires, gun flashes, and much other useful material may be recorded on earlier or later frames, though there is naturally no ground detail without a flash, except when the ground is lit up by the flash from another aircraft.

There is one important limitation to night photography; it is obviously impossible to get any view of the ground when an attack is being made through ten-tenths cloud.

A very few hours after all the aircraft have landed the plotters get to work on the photographs. Theirs is a highly skilled job; often they have to determine the position of the area photographed from the smallest indication—a glimpse of a street, or the curve of a river only illuminated over a very small area. But such indications are quite enough for them to find the exact position of the area by comparing it with a map or a mosaic photograph. The plotters make their first report on the success of the attack to the Commander-in-Chief of Bomber Command, and the decision whether or not to attack the same target again may depend on their report. Later they produce a map on which all the areas plotted are marked in relation to the aiming point on the target. Such a map usually gives a precise indication of the success or otherwise of an attack and is also of the greatest value in planning tactics for the future.

#### FREIGHT AND PASSENGERS AS PER MANIFEST

By Squadron Leader R. A. Abbott.

EVERYONE knows and admires the heroic deeds of the aircrews of Fighter, Bomber and Coastal Commands. Transport Command is not so well known, yet its work is of vital importance in practically every aspect of the world-wide struggle. Although it is a new R.A.F. Command its origins are both in Civil Air Transport and in the R.A.F. Communications Squadrons. While remembering the magnificent work of the R.A.F. Bomber Transport and Communications Squadrons in the early days of the war, and in the 1940 evacuation, it might almost be said that Transport Command was born in Africa in 1941, when the dangers of the Mediterranean sea route had forced our merchant shipping to travel to the Middle East by way of Capetown, and the trans-African air-route from the Gold Coast to Cairo had come into regular and ever-increasing use for the rapid movement of urgent passengers, freight and mails to the Middle East and to isolated Malta.

At the same time, and for similar reasons, the North Atlantic Ferry from Great Britain to Canada and the U.S.A. was being developed, pioneered by the R.A.F. in

conjunction with British Overseas Airways.

After flying during 1940 and most of 1941 with ancient Bombays and D.H. 86s., the R.A.F. Communications Squadrons in Africa and British Overseas Airways eventually got modern aircraft. Then Pan-American Airways began to operate across the South Atlantic to Takoradi and Cairo. Pan-American had D.C.3s.; they brought a complete organization, from American commercial Air Transport; everything and everybody from aircraft and crews to signals experts, accountants and construction parties who rapidly adapted themselves to the new job. Finally came the Liberators of the U.S. Army Air Transport Command. All resources were pooled, as they were also pooled in the vital North Atlantic route.

So far so good, but the battle fronts were extending rapidly. Air Transport had to be provided, for commitments out of all proportion to the capacity of existing R.A.F. Transport squadrons and groups. So, in the latter part of 1943, Transport Command was formed, under the command of Air Chief Marshal Sir Frederick Bowhill, who had formerly directed Coastal Command and, later, the R.A.F. Ferry Command in

Canada.

I am going to try to give you some idea of what Transport Command does, by describing a typical day's work on the part of an officer of the A.D.R.U., the Air

Despatch and Reception Unit at a Transport Command airfield.

At the A.D.R.U. is a large hangar, with enough space for a four-engined aircrast to be loaded up; inside the hangar the freight is stacked ready for loading. The phone rings. The Watch Office or the Signals Staff are giving warning that a Liberator will be landing in about half an hour's time. More than likely it will be three Liberators or Dakotos, possibly six or seven, all coming in to land within a few minutes of each other.

"Righto!" says the Duty Sergeant, "better call the officers." During the next

few minutes vans are started up and driven out to the tarmac.

From advance signals messages the officer and his staff will know whether there are any important passengers in the aircraft. There is a special name for important passengers, a rather laconic one—they are called "V.I.Ps.," that is "Very Important

Personages.

The incoming aircraft circles; after a few minutes it taxies down the tarmac, twenty-five tons of stately grace. The captain gives the engines a final "rev," the props come to rest, the chocks are placed in front of the wheels. The passengers are very happy to be in England; even German prisoners have been known to smile at such times!

While the freight and mails are unloaded the A.D.R.U. Officer shepherds the passengers to a long hut. Here they are examined by the Medical Officer, sign Customs

Declarations, are checked by the Security Staff, have their baggage inspected and, usually to their glad surprise, are served with tea and sandwiches by a duty W.A.A.F.

No one minds the few formalities, although I remember one rather difficult few minutes. That was when three Russian officers arrived. None of them could speak any language but Russian; sign language was a failure, and the situation was only saved by the providential appearance of a Czech pilot, who could speak Russian.

Provided with railway vouchers to their respective destinations, passengers disperse to the messes, and after a bath and breakfast are driven to the station. If they are "V.I.Ps." they are usually flown to London. By this time the freight and mails will have been checked and disposed of, the passengers are away, signals have long since been sent to Air Ministry and Overseas, and Transport Command has been phoned. The incoming aircraft have been dealt with and it is time to prepare for the night departures. The available load has been allocated: so many passengers carrying so much baggage, so much freight, so much mail. Some of each category will be flown by British Overseas Airways—they will take charge of that.

Inside the A.D.R.U. the staff who deal with passengers will, if they are lucky, have a comparatively quiet time during the morning and afternoon; the freight staff will be very busy, but eventually the aircraft is loaded and the captain satisfied with the way the load has been arranged. His plane is moved out to the tarmac; the next one is loaded.

Now for the passengers. During the afternoon they have travelled down from London and are met at the station by an A.D.R.U. Officer and conducted to the airfield. First, they and their baggage must be weighed; the regulations are strict in this respect, for aircraft space is valuable and must be gauged down to the last pound. Someone is sure to have brought more baggage than is allowed—he hopes

it will be all right.

Weighing over, the passengers are fitted with warm flying kit, shown how their parachutes work, and the captain or navigator gives them a short talk, discreetly pointing out, among other things, that while in the air all passengers, whatever their status, are under his orders, especially in the event of an emergency. They listen carefully, and understandingly, especially if they are not accustomed to flying. They feel a little uncomfortable in their flying kit, but I have seen generals glancing, not without admiration, at their reflection in the mirror—now they are airmen, if only for a few hours. But the thrill is shortlived, the flying kit is packed away in parachute bags, the passengers are driven over to the hut, to go through much the same formalities as did the incoming passengers a few hours before.

At last all the passengers are ready, and the A.D.R.U. Officer accompanies them in the coach to the country house, a few miles from the airfield. Here they can relax for a few hours. Over a drink, after dinner, they listen to informal talks by the Medical Officer and the Intelligence Officer. They are instructed in the use of the oxygen-mask, should the aircraft fly high enough, and warned of possible discomfort when the plane climbs or descends at all rapidly. They are shown the little box provided for each passenger, a real treasure-chest of emergency rations, compass, matches and other things invaluable in the unlikely event of a forced landing far from civilization. They learn that their parachutes have various unsuspected uses, even as a sunshade in the desert, or as a receptacle for precious moisture.

The Medical and Intelligence Officers have given their lectures, many, many times, the A.D.R.U. Officer has listened just as often, but they are always new, for the

company is new and the subject matter is indispensable.

Another hour or so and the A.D.R.U. Officer 'phones the Control Officer and the captain, confirming that the estimated time of departure has not been changed. It is time to return to the airfield. The passengers are ready, but a little sorry to leave the house that is so very English, so much a part of home. They may be away for years.

It is very dark at the airfield but there is great activity. The aircraft is being "revved up," the boundary lights are shining, the flare-path is out. In the A.D.R.U. hangar the passengers put on their flying-kit and have a final cigarette. They are driven out to the plane and go aboard. They have spent a pleasant evening; the

A.D.R.U. officer is gratified, perhaps a little embarrassed at their thanks—he has been doing his job, not a romantic job, as R.A.F. jobs go, but a necessary one, and if the

passengers are appreciative he is glad.

The A.D.R.U. Officer goes up to the Watch Tower to see the take-off, checks the time, sends the departure signal—his day is over. Probably he would rather be flying the aircraft himself, but that is not his lot. He knows, though, that he is an integral part of the R.A.Fs. newest command, a command that already spans the world. It is in Transport Command, together with British Overseas Airways that the foundations are being laid for Britain's future in civil aviation.

The Battle of Britain was won by Fighter Command; Coastal Command was instrumental in keeping open the sea lanes during the Battle of the Atlantic; Bomber Com-

mand is smashing the Nazi home front.

Transport Command sends its aircraft daily, not only right up to the battle line, but often well beyond it, as at Salerno. The Command is organized in and for the war. It will continue to make its contribution after the battles have been won.

#### ROYAL AIR FORCE FOOD PRODUCTION

By H. V. TAYLOR, O.B.E., D.Sc., A.R.C.S., V.M.H., Horticulture Commissioner, Ministry of Agriculture and Fisheries.

So often has the statement been made that much of the best land in the country has been lost to agriculture by the erection of R.A.F. camps and aerodromes, that it is pleasing to record that the Royal Air Force has itself undertaken to assist the food

production effort by utilizing spare land on the camps to grow food crops.

Probably less than half the land taken by the Air Ministry is used for actual flying operations; the major part is devoted to service living quarters, administrative offices, lecture halls, hospitals, training and radiolocation centres, etc. It is between and around these buildings, on outlying fields and in odd spaces that some food production is possible. There may, for example, be a few square yards at the end of the buildings, and a few rods between them, with perhaps a quarter of an acre between the large messing buildings. On a small camp unused land may total 5 or 6 acres; while a large camp may have as much as 40 to 50 acres to spare. The total area over the country extends to some thousands of acres, and during 1943, over 7,000 acres of aerodrome land were cropped with vegetables.

Waste Land a Nuisance.—The R.A.F. soon discovered that waste land could be a nuisance, for long grass and such weeds as stinging nettles, thistles, docks and couch. quickly appeared in the spaces around and between the huts. Besides giving the camp a derelict appearance, they constituted a source of serious fires in the event of the enemy dropping incendiary bombs: also, the weeds would quickly become a nuisance to neighbouring fields. The camps were not prepared to tolerate such waste of land.

and therefore settled down to tackle the problem.

In some instances the land was seeded to grass and mown, but besides being wasteful this was extravagant of man-power and impracticable for large areas. The alternative was to cultivate the land, and this the R.A.F. decided to do. Experience has shown that the land can be cultivated and kept reasonably free from weeds and, at the same time, the men are enabled to provide themselves with fresh and nutritious vegetables. A camp with 4,000 men requires 400 to 500 tons of potatoes in a year, and perhaps 200 to 250 tons of fresh vegetables, and often it was difficult to obtain these supplies, particularly where the camp was remote from the centres of vegetable production. Few camps could undertake market-gardening with the sole object of feeding its personnel, but many could produce vegetables and so ease the situation.

GARDENING "OPERATIONS."—Gardening is easy if there is a skilled staff available to supervise the work, and labour is adequately equipped. But the service duties of R.A.F. personnel do not include gardening, so that the work had to be performed voluntarily outside normal hours of duties—a handicap which proved almost insurmountable at some of the camps.

No single method is practised everywhere; each camp has set up a system to suit its own conditions. Generally, a large camp is made up of a number of "wings." The term "wing" means a definite strength of personnel under a Wing Commander, and the wing lives and feeds as a unit. Usually each wing makes itself responsible for the gardening of the spare land around the buildings in the wing, and all who are interested in gardening are encouraged to spend half-an-hour of an evening in the garden. In some camps there may be three or four wings, and it is often possible to organize an internal competition between them, and to award prizes to the wing which makes the best gardening effort. The variation between wing gardens in the same camp is surprising.

In addition, there is a certain amount of land which does not belong to any particular wing, such as that around the administrative offices, the officers' mess, the large square, parade ground, etc., and for this it has occasionally been found necessary to have a small staff who are really responsible for growing the crops.

At some camps the gardening is not based on the wings, but is organized by the central staff. Usually an officer, styled "O/C Gardening," is placed in charge of the gardening movement, and it is his job to stimulate the enthusiasm of the wings and generally to see that the land is properly cultivated and cropped. The officer is usually assisted by a corporal employed permanently on gardening, and between them they get all ranks—including the W.A.A.Fs.—to help in the good work.

EXPERIENCE TEACHES.—To begin with, the people in charge, though full of energy and enthusiasm, were often entirely inexperienced, and, in consequence, a great diversity of crops was grown without sufficient recognition of the kitchen requirements. Gluts and shortages were fairly common. However, they have learned from experience, and now concentrate on the production of such crops as salads (which being fresh are much enjoyed), early potatoes (which are sometimes difficult to obtain locally), and winter vegetables (which are now grown in abundance on all camps). The principal root crops grown are carrots, beet and swedes. (The airmen do not seem to be very keen on turnips, parsnips, leeks or spinach.) Green peas are a general favourite, but this crop has the disadvantage that much time must be devoted to picking and shelling—a job far beyond the capacity of most kitchen staffs. Cauliflowers, ridge cucumbers and red cabbage are grown to provide pickles—a great camp dish!

Those in charge, and particularly the "Gardening" corporals, have gained much knowledge and experience in the management of the land; thorough cultivation is understood, and when sufficient labour cannot be obtained for hand digging, recourse is had to small garden tractors. Compost heaps are a common sight, and the land is treated with abundant dressings of lime and adequate supplies of organic fertilizers. The gardening effort made by the R.A.F. has emerged from the experimental stage and has become a sound practical scheme.

GARDENING TROPHY COMPETITION.—To encourage the units to undertake gardening the Minister for Air decided to award a trophy. This is presented annually to the camp that has shown the best effort within the year in making itself self-supporting in vegetables. Each year a large number of camps are visited and the efforts judged. It was the writer's privilege to see the best ten camps (eight in England and two in Scotland) and to select from these the winners of the trophy. So that the year's effort can be assessed adequately, the judging resolves itself into an inspection of the crops at any given time and an examination of the records showing deliveries to the mess. For 1943 a R.A.F. training camp in Shropshire was placed first; another in Wiltshire was a very close second. Next in merit were two small stations, one in Dumfriesshire and the other in Lancashire, at each of which the gardening, though small, was exceptionally good.

"A Good Show."—At the leading camps there were attractive floral gardens at the entrance and around the Station headquarters, and at each Station there were between thirty and forty acres highly manured and intensively cropped with vegetables. Vegetables were supplied continuously to the kitchens, and in some months their value was as high as £500. It is probable that over the year each of the two Stations would raise some 250 tons of vegetables, worth over £3,000—even when these are valued at two-thirds of the price normally paid in the market by the N.A.A.F.I. for similar vegetables. In the camps throughout the British Isles the total value of vegetables raised is probably in excess of £225,000 (a figure mentioned by Lord Sherwood, the Under-Secretary for Air).

The Air Ministry does not, however, escape paying for these vegetables! The interesting part is that the crops belong to the camp, and the gardening scheme is credited with the value of the crops sent to the mess. This profit is paid into the P.S.I. Fund for the improvement of camp amenities and generally to make camp life more enjoyable. The advantage to the camp can be seen by reference to one Station. Here the gardening profits have been used to provide wireless receiving sets and pictures in messes and dormitories, and billiards tables and other games in the recreation rooms. Very many camps have benefited similarly.

The R.A.F. gardening effort thus achieves three things: it provides fresh salads and vegetables for the mess, it gives the camp a pleasing appearance, and indirectly brightens life in the service quarters.

#### 4,000 R.A.F. OFFICERS REPLACED BY W.A.A.F.

DURING 1943 the W.A.A.F. has taken on duties of greater responsibility than ever before. There has been a marked increase in the substitution of R.A.F. by W.A.A.F. officers and airwomen, which has meant the release of an additional number of men for flying duties or service overseas.

There are now approximately four thousand W.A.A.F. officers who have taken the place of R.A.F. officers, which shows an increase of seven hundred during 1943. Over three hundred hold responsible staff appointments at the Air Ministry. The service meteorological officers in Flying Training Command will shortly be one hundred per cent. W.A.A.F.

Almost four hundred W.A.A.F. officers employed on code and cypher intelligence. signals, catering and R.A.F. administration duties are serving in Italy, Middle East, North Africa, Canada, U.S.A., West Indies, Bermuda and on Admiral Mountbatten's staff in India.

Statistics show that at least ninety-five per cent. of the airwomen are directly replacing airmen and seventy per cent. of them are in skilled trades. Throughout the year airwomen have remustered to duties hitherto undertaken by airmen, and have proved themselves highly capable. These duties include the Group I trade of fitter II (aero) and (engine), wireless-operator-mechanic, carpenter, and draughtswoman cartographical.

In Balloon Command one technical W.A.A.F. flight-sergeant balloon operator is being appointed at each flight headquarters. She will inspect balloon sites, both from a technical and administrative point of view, and give instructions for routine technical adjustments.

#### **BOMBERS IN THE NIGHT**

THE light of stars in heaven
Is vanquished by the light
And throb and ecstasy
Of bombers in the night.
They steer beneath the stars above,

They roar above the flak,
They hurl the might of dynamite
Where the world is blurred with black.

The stars around them shudder
At their progress through the night,
And men within the great machines
Stare musing at their winking light.

B. P., U.S.A.A.F.

#### IN MEMORIAM-RICHARD HILLARY, R.A.F.V.R.

DAZED, with the trumpets sounding in his ears,
He felt, regretfully, Life's staying hand,
And left the solvent mystery of the spheres
And waited what, so late, she should command.
Mourning mute shadows mocked him as he lay
Within his broken manhood—as the truth
Held from the shapeless sheet day after day
A ghastly mirror to his splintered youth.

But resolution walked beside his pain
And love brought light again to quenched young eyes,
And tongues of courage lit and leapt again,
Arching like rainbows over shaken skies.
Sunlight moved on him—and moved in him
Memory of flight in windy caverns of air:
The lift of eagle, soar of seraphim,
And fields where only he and planets were.

Steeled and remote, the moulded man arose
And knew he must inhabit once again
The lucent world that had been his: espouse
Anew the bride who had desired his pain.
This time, the high exacting gods approved
His gift made perfect in the passioned clay,
And took the clean oblation, whom they loved.
And Life was dumb, and turned her head away . . .

His not to reason causes, but to draw A shining pattern on the startled night In blameless glory, like a meteor's Ardent signature in lovely light.

WRENNE JARMAN.

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The R.A.F. gardening effort thus achieves three things: it provides fresh salads and vegetables for the mess, it gives the camp a pleasing appearance, and indirectly brightens life in the service quarters.

#### 4,000 R.A.F. OFFICERS REPLACED BY W.A.A.F.

DURING 1943 the W.A.A.F. has taken on duties of greater responsibility than ever before. There has been a marked increase in the substitution of R.A.F. by W.A.A.F. officers and airwomen, which has meant the release of an additional number of men for flying duties or service overseas.

There are now approximately four thousand W.A.A.F. officers who have taken the place of R.A.F. officers, which shows an increase of seven hundred during 1943. Over three hundred hold responsible staff appointments at the Air Ministry. The service meteorological officers in Flying Training Command will shortly be one hundred per cent. W.A.A.F.

Almost four hundred W.A.A.F. officers employed on code and cypher intelligence. signals, catering and R.A.F. administration duties are serving in Italy, Middle East, North Africa, Canada, U.S.A., West Indies, Bermuda and on Admiral Mountbatten's staff in India.

Statistics show that at least ninety-five per cent. of the airwomen are directly replacing airmen and seventy per cent. of them are in skilled trades. Throughout the year airwomen have remustered to duties hitherto undertaken by airmen, and have proved themselves highly capable. These duties include the Group I trade of fitter II (aero) and (engine), wireless-operator-mechanic, carpenter, and draughtswoman cartographical.

In Balloon Command one technical W.A.A.F. flight-sergeant balloon operator is being appointed at each flight headquarters. She will inspect balloon sites, both from a technical and administrative point of view, and give instructions for routine technical adjustments.

#### **BOMBERS IN THE NIGHT**

The light of stars in heaven
Is vanquished by the light
And throb and ecstasy
Of bombers in the night.
They steer beneath the stars above,

They roar above the flak,
They hurl the might of dynamite
Where the world is blurred with black.

The stars around them shudder
At their progress through the night,
And men within the great machines
Stare musing at their winking light.

B. P., U.S.A.A.F.

#### IN MEMORIAM-RICHARD HILLARY, R.A.F.V.R.

DAZED, with the trumpets sounding in his ears,
He felt, regretfully, Life's staying hand,
And left the solvent mystery of the spheres
And waited what, so late, she should command.
Mourning mute shadows mocked him as he lay
Within his broken manhood—as the truth
Held from the shapeless sheet day after day
A ghastly mirror to his splintered youth.

But resolution walked beside his pain

And love brought light again to quenched young eyes,
And tongues of courage lit and leapt again,

Arching like rainbows over shaken skies.

Sunlight moved on him—and moved in him

Memory of flight in windy caverns of air:

The lift of eagle, soar of seraphim,

And fields where only he and planets were.

Steeled and remote, the moulded man arose
And knew he must inhabit once again
The lucent world that had been his: espouse
Anew the bride who had desired his pain.
This time, the high exacting gods approved
His gift made perfect in the passioned clay,
And took the clean oblation, whom they loved.
And Life was dumb, and turned her head away . . .

His not to reason causes, but to draw A shining pattern on the startled night In blameless glory, like a meteor's Ardent signature in lovely light.

WRENNE JARMAN.

#### FOR MY BROTHER JOINING THE R.A.F.

I SALUTE you who stand poised on the near eve
Of your timed drop. It was to be. The strings
That tie the moment are about to give,
And land in the impersonal sea your billowings,
Where individual hopes and private pride,
Loose spray escaping yet the permanent grave,
Bob casually on the back of the dignified
Oncoming mighty relentless tidal-wave.

I charge the saint who holds the destiny
Of all who go on airy business:
She guards the eagle and the wren—guard she
You more than they whose element it is.
I charge her with your safety, with your courage,
The casket of your honour, bravely borne;
And by her will, believe you will emerge
From furious clouds to some new vivid dawn.

WRENNE JARMAN.

#### **OUTWARD JOURNEY**

THE blue bowl of the sky is full Of a great thunderous roar: The steely caravan goes by, Caparisoned for war.

Like meteors they hurtle through A fluent, cloudy sea,. The cold stars quieter beside Their bright mobility.

Homesteads lie silvered, bolted, barred, In lakes of shadow where Tired bodies drowse, sweet pillows soothe— But in the friendless air

They do their high and fearful task Whose nightly crop is Death. No dull, inglorious contract theirs For some worn shibboleth,

But a swift, fiery, thrilling race Matched with the Infinite. Our flesh, diviner hearts than ours Flash glorious through the night.

WRENNE JARMAN.

#### A NEW COLLEGE FOR THE ROYAL AIR FORCE

During this war there has been one radical change in the organization of the R.A.F. which merits special attention in these days of post-war planning; and the need for this consideration is not far to seek; in fact it is patent to the eye in its generalities but rather more hidden in the results to be achieved. The change referred to is the formation of a technical branch and in direct line with that is the Command which deals directly with the training of technical personnel alone. But on deeper consideration this Command does not deal with one problem which will recur in peace and which, in the case of the General Duties Branch, was shelved at the outbreak of war for the duration. am, of course, referring to the training of cadets; in this particular article to the future training of engineer cadets who will form the material for the peace-time technical engineer branch, I will endeavour to produce a plan which will ensure a sounder training of these future officers than was the case in the last peace, and it must be realized that there is a different need for better facilities in the future because the conditions are so different. It is not possible here to discuss the pros and cons of a separate technical branch, but in this article we must assume that this wise step is to be continued and, therefore, there will be a very definite need to keep a steady flow of recruits both into the ranks and into the officer grades. These two gradations of technical personnel are reliant one on the other and, therefore, although I am primarily writing for the officer grade, the training of those who will join as A.Cs. must be discussed, since it forms a fertile group for selection of a percentage of candidates.

In pre-war days selection for engineer specialization was by choice of merit among officers who had already completed some years in the General Duties Branch. The method employed to choose the right candidates was by merit in an examination among those with short service commissions and by selection among the permanent officers. There were several subjects in which one could specialize, and a successful candidate, on passing the training course and completing a few months of specialist duties, was given an antedate over his contemporaries. He then alternated periods of general duties and his specialist duties. To-day the result of this form of specialization is that officers who are in the technical branch from these sources were at one time considered more Thus was estabcapable and more clever than those who remained in General Duties. lished a good basis for the engineers, but at the same time led to much heart searching among them whether to give up a chance of more advancement and kudos in the branch for which they had originally trained, or to change into a career into which they had been side-tracked, leaving the road clear for some of their contemporaries who had not been so fortunate in the past to obtain as high marks in an examination. There was no hesitation on the part of others who were inclined to engineering, and yet again no hesitation on the part of others who firmly declined to leave the ranks of operational

This briefly is the shortcoming of a scheme which worked well in those days, because the aeroplane was not a complicated, rather intricate mass of mechanical and other gadgets which have to be fully understood to be maintained; it was, in fact, a part-time occupation of the pilots. Now that has changed and if we are to have an engineer branch then all the officers must be brought up as engineers who are allowed in certain cases to specialize in aircrew duties for the mutual benefit of both. That was before the war; now during the war the entrants were drawn from three distinct groups—first from the ranks, second from civilians who had practised engineering in some form or another and, third, those who had gained a degree or its equivalent at a university or training college. Of these three the first was probably the easiest to adapt because the new officers found the routine second nature, but the field of knowledge was increased; the second found a new routine but the engineering principles and practice had to be adapted; while in both cases the age of the officer was above that normally associated with a new career. But in the third case, although the age was right, the routine was new and the principles were understood only—the practice had to be acquired.

pilots.

From all this it is possible to describe the type of entrant who could be of greatest

use to the service as soon as he is commissioned; that is one who knows the service routine, and at the same time has absorbed the principles and some of the practices employed and yet has a valuable length of service ahead of him—so in this article I am advocating the establishment of a cadet engineering college on similar lines to the R.A.F. College, which set such a high standard for the permanent commission officers of the General Duties Branch.

A cadet college implies that the cadet himself is at the passing parade both at the threshold of a career at the age of some twenty years and at the same time well versed with knowledge in his future duties and responsibilities. In order to receive a commission at 20 or 21 and to complete the four years' training in the correct subjects, the cadet will have to take his entrance examination at 16, or 17 at the latest; which is fully to be commended, for at this age a youth has to make a decision regarding his future. On the other hand to defer entry until 18 years of age would, on his commission, make him older by two years than his equals in the flying branch. A sound principle in some ways, which is on a par with the commissions offered to university candidates.

When the war is over and men start to return to civilian occupations there will be few if any vacancies for young men to enter the technical branch and therefore we may expect an hiatus of a few years before further recruiting takes place. In this period there will be time to consolidate and bring into being the plans for a complete new

scheme.

My proposal is that the engineering college should be extended and embrace junior wings from which a natural graduation and selection takes place, to parallel this scheme with one for airmen training, and at the same time provide for the natural progression to the cadet college of those airmen trainees who have proved themselves. In this way the present method of allowing commissions from the ranks is adhered to, but for those who are fortunate enough to be able to pay for a son's education there is no bar forcing

him to spend additional years proving his merit.

It will be necessary here to divert from the principles of engineering instruction and consider the general ages of the educational periods in boys under 20, at the same time starting to visualize a comprehensive method of instruction over an age period starting at 14 years. This age of 14 years' old in a boy's life is one where he is starting, and his parents are in the middle of thinking what bent he is acquiring for a steady middle age. It also happens to be a very convenient age for the beginning of a career in aeronautical engineering or fitting. This is an age when general education can be mixed with particular instruction to the advantage of both. The next critical age is 16, when a number of lads have finished their schooling and are in the world of apprenticeships. As one foresees this age at present it will be the age for the finish of the general State education scheme, at the same time the average schoolboy has finished his school certificate standard and is ready to persevere on preparing for a school specialization in one of the branches of classics—physics, mathematics, and so on; this was the field of aircraft apprentices and now can be extended to gather in officer-engineer cadets.

Finally, there is the youth of 18 whose learning has been finished at the highest school-leaving age and who can be considered as capable of acquitting himself in candidate examinations for the University, for a flying cadetship or for starting study for the final years of an engineering degree. These entrance examinations nowadays are not an indication of general education, except for certain institutions whose forte is general education, but are a qualification for the bottom ring of a syllabus in the training programme, so that the entrant for specialized colleges must be in a position to compete with the particular subjects of the examination and, in general, the standard to be achieved is nearly two years' work above the intermediate or school-certificate level.

If we reverse the order of age in considering the requirements of passing out the finished product of a junior engineer officer, and assume that an officer requires more highly polished knowledge than an airman, and also that the commission should be open to everyone who can make the grade, we can visualize the scheme in toto for building up the scientific and service background of the future engineers. We can foresee that a R.A.F. Engineering College will turn out officers at the age of 21, or at least 22, years old who can assume their responsibilities immediately. This College would mean as much to the Technical Branch as the R.A.F. College meant to the

General Duties Branch, and as Woolwich meant to the R.E. It must be a whole-hearted affair worthy of the Air Force traditions and equipped with modern lecture halls and equipment for instruction. Its instructors must be both artisans and sound technicians and the officers experienced in the maintenance of the Service to bring out the full value of a syllabus that is both practical and fitting as cadet training. The qualification for entrance will be such that new cadets are drawn both from Public Schools, etc., by a public examination and from those who have already finished a course in one of the other schools mentioned later. But before leaving this College let us bear in mind the need to combine flying training for some cadets and special branch training for others. There is no equivalent to the College in the training for entrants to the ranks.

A step down in age to the lads whose passing-out parade is to be about their eighteenth birthday, or a year earlier, and who have been instructed for two years in These are the lads who will form the bulk of airmen on practical aircraft fitting. regular engagement in the same manner as pre-war, and in a like manner will be given a chance to gain a cadetship either in the Engineering College or Flying College. The re-establishment of such a school provides little trouble and, in fact, will be a necessity if the fitter trades are to continue in post-war conditions. Although the syllabus must be severely that of an aircraft-apprentice there will certainly be those with a definite professed resolve of working for a cadetship; this should be encouraged by extra tuition, encouragement and facilities. As I have already pointed out, there is need at the same time to provide a training school for those who have an object after the school certificate has been passed, and also an advantage in providing a definite pathway in schooling for those who wish to pay for the final two years. This will be met in a junior wing of the College with an entrance at about 16 and a training syllabus which will combine Service surroundings with a pronounced leaning to the passing of the College entrance examination. The word "junior" is, perhaps, not correct, in that it is misleading in its implication. It would be more explicit probably to call it a school and to enlarge the scope to include a general training grading for all classes of cadets and those who aspire to commissions later. This will enable it to encompass a greater number of pupils and thus ease the method of running it. In fact, if one carries on to a logical conclusion the pupils will include others who want a grounding in these subjects but who will at the end of the period take examinations to other professions or faculties such as the Army or University. This opening of the scope would give a larger field of selection for the College authorities.

Descending again in age, one can visualize a junior school with boys of 14 to 16 years old who have ambition to join the Air Force at the latter age. Here again there are the two classes of boys, the one who can buy his education and the other who has a State education. There is in both cases a field rich in material of all sorts and conditions, where a process not only of sorting those required to accept later, but also of providing and stimulating an interest in the air even though it leads the pupils to other trades eventually. At the same time it provides a boarding-school atmosphere, which is absent from so many secondary schools, and a purpose which is absent from so many public schools. If one thinks that this age of boys is too young for the R.A.F. to sponsor education in its entirety, it is certainly not too much to ask for a definite interest in the training and environment with probably special scholarships or chances of entrance to the more senior schools.

Thus we finish the three links in the scheme for post-war education for the R.A.F. engineer officers. It is by no means exhaustive in that no attempt has been made to discuss the possibility of accepting boys about 12 years old into a College and continuing their training right through to qualification for a commission; nor have I put forward the applicant who has worked for an engineering degree and whose claims for a chance to enlsit cannot be ignored. But I have set down what I consider to be a sound method of ensuring that the permanent engineers of the future R.A.F. are trained adequately and that they are drawn from the best possible material. At the same time I believe the scheme will be in keeping with the change in education generally after the war; while, as I said earlier on, it is capable of extension to include not only all the other specialist branches, technical and non-technical, officer and airman. Before concluding I have to draw the attention of the reader once again to the future of the R.A.F. and

to emphasize the warrant it will hold for a careful plan to keep its fully mechanical aircraft in flying trim; and therefore of the thorough training of all who are chosen in the appropriate roles to look after the aircraft. For this education is a big responsibility if it is shouldered in its entirety and not left to others to provide such as they think fit, leaving the Service to accept whom it can attract either to serve as Civil Servants, designers or as engineers in the maintenance scheme. At the same time. pitfalls of the future must be avoided by carefully weighing-up changed conditions against past practices which worked adequately in those days but which creak and groan rustily when resuscitated.

N. C. W.

#### THE GERMAN WILL TO WAR\*

THE following is condensed from an article which appeared on 12th August, 1943, in the Leipziger Neueste Nachrichten. It was written by Oberst F. Winter, in command of a District Recruiting Headquarters (Wehrbezirks-kommandeur). It is a first-class expose of the Germans' self-congratulatory attitude as regards the desire for war, and the smug satisfaction taken in the preparations for it. It is against precisely this sort of attitude that we shall have to be on our guard after this war.

"On the battlefields of Jena and Auerfeld the pride and glory of the Prussian army was laid low, and its bitter fate was sealed at the Peace of Tilsit on oth July, 1807. that very same month on 25th July, 1807, witnessed the birth of the Army Reorganization

Commission as a natural reaction against the recent collapse.

"The task imposed upon the Commission by King Frederic William III was to work out the future constitution of the army, and to correct such defects in its organization and methods of training as had been revealed during the course of the war.

"No more suitable choice could have been made as President of the Commission than Major-General Gerhard von Scharnhorst, then in his 52nd year. His most prominent collaborators were Boyen, Clausewitz, Gneisenau and Grolmann.

"The great creative and fundamental conception underlying Scharnhorst's reorgani-

zation was the principle of universal conscription.

"Further important innovations were introduced by Prince William, who became William I, King and Emperor, during the years 1858-60. It is from the territorial defence cadres which were formed at this time that the Recruiting Headquarters, now known as Bezirks Kommandos, took their origin.

"In Bavaria these were set up under the Armed Forces Act of 30th January, 1868. in pursuance of which the Kingdom of Bavaria was divided into 42 Territorial Army Districts. At the beginning of the Great War in 1914, the Bezirks Kommandos and their

officers in charge were an institution familiar to all.

'But a second, more terrible Tilsit broke over Germany. The 'Dictate' of Versailles of 28th June, 1919, was intended to checkmate Germany once and for all. First and foremost it provided for the abolition of universal conscription and the prohibition of any mobilization plans by Germany. This meant at the same time the end of the Bezirks Kommandos, and the disappearance of many more institutions that had contributed to the strength and preparedness of the old German army, such as the General Staff, the Military Academies and Staff Colleges.

"The rage and hatred of our enemies may have destroyed these institutions, but

they could not destroy our German fighting spirit or our will to war.

"After years of dishonourable disarmament the 30th January, 1933, marked the beginnings of the implementation of Point 22 of the Nazi Party Programme, which runs: 'We demand the abolition of our force of mercenaries, and the formation of a National Army.'

<sup>\*</sup> Received from the War Office.

"The necessary measures were initiated one by one, but in complete sccreey and cleverly disguised, until on 16th March, 1935; Germany declared to the world that 'the honour and safety of the German Reich is from now once more entrusted to the might of the German nation.'

"The organization of the necessary recruiting machinery could now openly proceed, and by July, 1935, the recruiting areas and sub-areas and their recruiting offices and personnel could begin their difficult and responsible task of conducting the first enlist ments and medical inspections.

"The Recruiting Offices (Wehrersatzdienststellen) contributed very largely to the successful invasion of Austria, Sudetenland and Czechoslovakia, as well as the prepara-

tions for the present war, including mobilization arrangements.

"Their labour and sacrifices were gladly given, and great was their satisfaction when the wonderful clockwork mobilization of August, 1939, proceeded just as accurately

and smoothly as it had done 25 years before.

After our final victory the German Armed Forces will continue to exist on the foundation of Universal conscription and the Armed Forces Act of 21st May, 1935. But the experiences of this war, the new conditions, and the expansion of Greater Germany will necessitate considerable changes, and once again the Recruiting Officers of days to come will work, as did their predecessors, to make the German Armed Forces the best organized in the world."

Translator's note: the italics are ours.)

It would not be out of place, at this point, to quote sayings made by eminent Germans

during the past forty years, which confirm the Germans' traditional attitude.

Von Treitschke, Professor of Statecraft at Berlin and Leipzig Universities, and regarded as a great national political teacher in Germany, said "that the idea that war should ever be banished from the world is not only absurd but profoundly immoral."

In a pamphlet, which was published in 1901, there appeared the following: "The Germans alone must govern. They alone will exercise the political rights of the landowners. However, they will condescend to delegate inferior tasks to foreign subjects

subservient to Germany.

Hitler's new-found faith in the Almighty is well in role: one finds its counterpart thirty years ago in Kaiser Wilhelm's proclamation to the Army in 1914: "Remember that you are a chosen people. The spirit of the Lord has descended upon me because I am the Emperor of the Germans. I am the instrument of the most High; woe and death to those who do not believe in me: God demands their destruction. . .

The article quoted above from the Leipzig Neweste Nachrichten is just one more

indication of the continuation of the traditional leanings.

#### ANTI U-BOAT CAMPAIGN

A JOINT Admiralty and Air Ministry communiqué issued on 20th February, 1944, reported that three of a number of U-boats which attempted to make individual passages from the Atlantic through the Straits of Gibraltar to the Mediterranean, during a moonless period recently, were intercepted and destroyed in combined operations by H.M. ships and aircraft of Coastal Command based on Gibraltar.

In the course of these engagements, which extended intermittently over eleven days and nights, several other U-boats were damaged. During two nights, while these combined operations were in progress, three large Allied convoys passed through the Straits

without interference.

The first sighting of the enemy force was made shortly after midnight by a Leigh-Light Wellington of Coastal Command, operating under the orders of Air Vice-Marshal S. P. Simpson, C.B.E., M.C. This aircraft, which was from a squadron commanded by Wing Commander J. H. Gresswell, D.F.C., engaged a U-boat in the approaches to the Straits. The enemy replied with intense anti-aircraft fire but depth-charges dropped by the Wellingtons straddled the U-boat and a burst of orange-coloured flame rose to a )

height of about 200 ft. The vessel later sank, forty-nine survivors being picked up. The aircraft sustained slight damage during the attack, but it returned safely to base.

Meanwhile, H.M. ships operating under the orders of Vice-Admiral Sir Harold Martin Burrough, K.B.E., C.B., D.S.O., Flag Officer Commanding Gibraltar, maintained constant patrols of the area. Four nights later the destroyer H.M.S. Obedient (Lieut.-Commander H. Unwin, D.S.C., R.N.) attacked two suspected U-boats with depth-charges, but the full results were not observed.

Later, a Leigh-Light Wellington from the same squadron illuminated and attacked a fully surfaced U-boat, which was forced to submerge, apparently in a damaged condition. The aircraft remained in the vicinity of the diving position until the arrival of the destroyers H.M.S. Witherington (Lieut.-Commander R. B. S. Tennant, R.N.), H.M.S. Velox (Lieut.-Commander G. B. Barstow, R.N.) and H.M.S. Highlander (Commander C. W. McMullen, D.S.C., R.N.), who carried out a wide search but no further contact was obtained.

Next day, another of the squadron of Leigh-Light Wellingtons sighted a U-boat on the surface and attacked. H.M.S. Velox, which was patrolling in the same area, proceeded at speed towards the enemy, which dived. The destroyer fired a pattern of depth-charges but the result was inconclusive.

Shortly afterwards the trawler H.M.S. Imperialist (Lieut.-Commander B. H. Craig Rodgers, R.N.V.R.) detected a U-boat in the vicinity of a convoy which was passing through the Straits. The trawler immediately attacked with depth-charges and later a U-boat slowly broke surface in the centre of the disturbed waters. The enemy's conning tower was seen to be buckled and the barrel of the forward gun was twisted.

H.M.S. Imperialist opened fire with all guns that could be brought to bear, scoring hits on the conning tower and on the hull, which apparently further damaged the U-boat. It submerged and the trawler made two more attacks with depth-charges. No further

contact was obtained and the trawler rejoined the convoy.

Later that night, in approximately the position of H.M.S. Imperialist's attack, the destroyer H.M.S. Douglas (Lieut.-Commander K. H. J. L. Phibbs, R.N.) illuminated a U-boat on the surface and opened fire on the enemy. Several hits were observed and the U-boat crew were seen abandoning ship by jumping into the sea. Soon afterwards the enemy sank. Eighteen survivors were picked up by H.M. destroyers and made prisoners of war.

In the early hours of the following morning the destroyers H.M.S. Withcrington. H.M.S. Active (Lieut.-Commander P. G. Merriman, R.N.) and H.M.S. Wishart (Lieut. J. A. Holdsworth, R.N.) detected another U-boat and carried out a combined attack but

it was not possible to observe the full results.

During the day, strong forces of H.M. ships maintained widespread patrols in the vicinity of the Straits. A few hours before midnight the sloop H.M.S. Fleetwood (Commander W. B. Piggott, O.B.E., D.S.C., R.D., R.N.R.) encountered a U-boat on the surface and illuminated it by means of starshell. The enemy submerged in a crash-dive and H.M.S. Fleetwood carried out four depth-charge attacks over the U-boat's diving position and continued to sweep the area throughout the night.

Later, a number of U-boat survivors were picked up.

Surface and air patrols were maintained for several more days and nights, but there were no further indications of the presence of U-boats.

#### BELGIANS GET THEIR CENTURY

When a Belgian Pilot Officer of a Typhoon squadron shot down a German bomber over his native city of Brussels recently, he scored the hundredth victory won by Belgian pilots in the R.A.F.

Flying with the West Riding of Yorkshire Squadron, which has had a long association with the Belgian Air Force, the pilot had become separated from his section when he spotted three Ju. 88s. He dived to attack and sent one crashing in flames.

As he flew back over Brussels the Belgian recognized many of the city's landmarks. His home is on the south side of the city and this was one of the few times he has been back since the German occupation.

A complete flight of Belgian pilots operated in the West Riding Squadron in the Battle of Britain, and there have been Belgian names on the pilots' list ever since. During the past twelve months more than twenty enemy aircraft have fallen to their guns, and when a British pilot shot down the squadron's 200th victim last October a Belgian flying with him quickly added the 201st.

The Belgian Air Force now has its own national squadrons operating alongside other Allied units, but there are still many Belgians flying with the R.A.F. both at home and overseas. One of the most successful of these became the first Allied airman to command a British squadron, and to-day he leads an R.A.F. wing overseas.

In one period of twelve months no fewer than five R.A.F. squadrons were led by Belgian officers. One Belgian Air Force Spitfire squadron destroyed seven enemy aircraft and damaged more in the Battle of Dieppe in 1942. Other Belgian pilots once dropped a Union Jack and a Belgian flag over Brussels as a symbol of encouragement to their compatriots.

#### BELGIAN STANDARD DECORATED.

To mark the destruction by Belgian pilots serving with the R.A.F. of their hundredth German aircraft, the Belgian Prime Minister and Minister of National Defence, Monsieur Pierlot, decorated the standard of the Belgian Air Force in Great Britain with the Croix de Guerre.

Accompanying the Belgian Prime Minister were Air Commodore L. Wauters, head of the Belgian Air Force, Air Marshal Sir Roderick M. Hill, K.C.B., M.C., A.F.C., and Air Vice-Marshal H. W. L. Saunders, C.B., C.B.E., M.C., D.F.C., M.M.

A number of the Belgian pilots who contributed to the hundredth victory were also decorated with the Croix de Guerre, and the Prime Minister was introduced to others who had shared in the successes.

The standard decorated was one smuggled out of Belgium by a patriot and presented to the Belgian Air Force based in Great Britain. Before it was borne off the parade, a roll of Belgian pilots killed in action was called by an officer.

#### THREE AND A HALF MILLION MILES A MONTH

AIRCRAFT of the R.A.F. Transport Command flew more than three and a half million miles in January. This figure includes the regular services over 60,000 miles of scheduled routes, on which 1,500,000 miles were flown. Reinforcement and ferrying totalled more than two million miles, of which one million were over the Atlantic.

Mails carried by Transport Command and by British Overseas Airways Corporation from the United Kingdom to destinations overseas in January amounted to 68,000 tons, freight carried was 506,000 lb., and passengers numbered more than 700. These are the figures outward from the United Kingdom during the month, and do not include the total operations of R.A.F. Transport Command groups overseas.

One of these groups handled more than 25,000 passengers, 5,600,000 lb. of freight and nearly 1,580,000 lb. of mail in January.



#### **BOOK REVIEWS AND NOTICES**

"An Introduction to Principles of Flight." By W. F. WARE, B.Sc. (Macmillan & Co., Ltd., 3s. net.)

A book that can be recommended as of assistance to cadets and others with limited mathematical and scientific training who desire a systematic approach to the study of the theory of

"THE COMMAND OF THE AIR." By Giulio DOUHET. (Faber & Faber; 14s. net.)

This book was published in 1921 and this is the first complete translation in English to be published in this country. This book has been the subject of discussion in The R.A.F. QUAR-TERLY. Whilst some of the theories put forward by the author still hold good to some extent many of them have been disproved and the book on the whole is now very much out of date as a serious and practical work on air power.

"CLOUD COVER." By DEREK GILPIN BARNES, with illustrations by A. K. LAWRENCE, R.A. (Rich & Cowan; 12s. 6d. net.)

Human stories revealing personalities among R.A.F. crews as seen through the eyes of an Intelligence Officer. Delightful reading and equally delightful pictures.

"HELL AND HIGH ALTITUDE." By MICHAEL SEAREN. (Methuen; 7s. 6d. net.)

The thoughts, letters and diary notes of a pilot in the Bomber Command.

- "CLOUD READING FOR PILOTS." By A. Douglas. (John Murray; 10s. net.) With 200 photographs.
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"THE BIRTH OF THE ROYAL AIR FORCE." The early History and Experiences of the Flying Services. By AIR COMMODORE J. A. CHAMIER. (Pitman; 15s.)

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#### **BOOK REVIEWS AND NOTICES**

"An Introduction to Principles of Flight." By W. F. WARE, B.Sc. (Macmillan & Co., Ltd., 3s. net.)

A book that can be recommended as of assistance to cadets and others with limited mathematical and scientific training who desire a systematic approach to the study of the theory of flight.

"THE COMMAND OF THE AIR." By GIULIO DOUHET. (Faber & Faber; 14s. net.)

This book was published in 1921 and this is the first complete translation in English to be published in this country. This book has been the subject of discussion in The R.A.F. QUAR-TERLY. Whilst some of the theories put forward by the author still hold good to some extent many of them have been disproved and the book on the whole is now very much out of date as a serious and practical work on air power.

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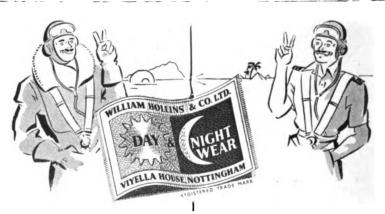
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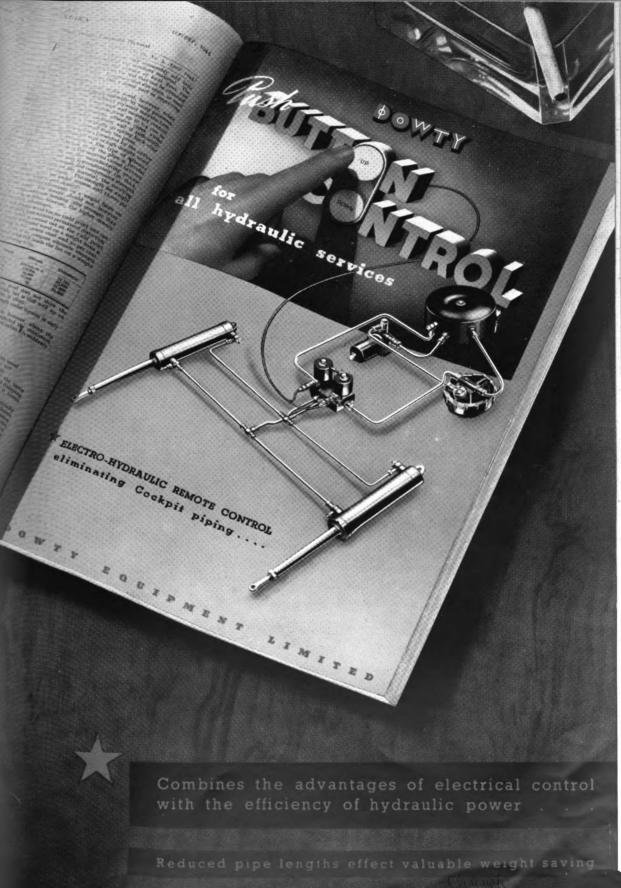


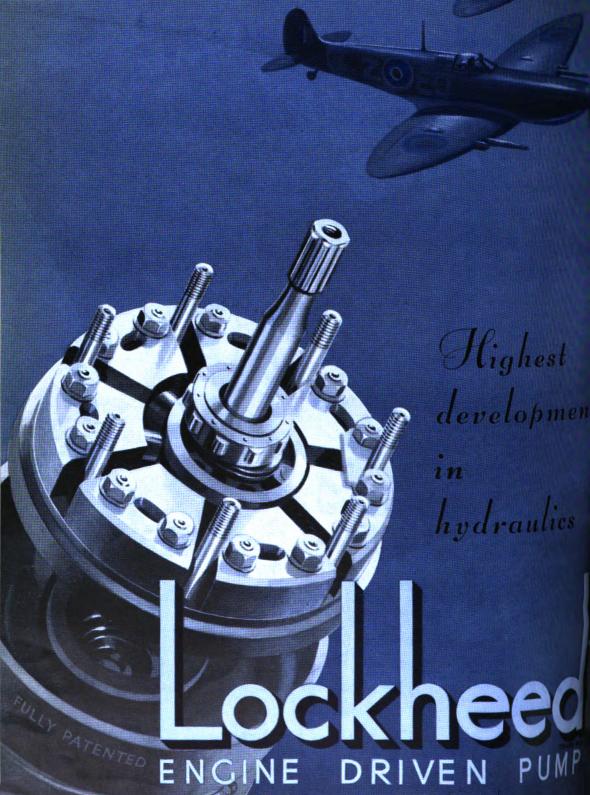
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Vickers "Wellesley" monoplane, Pegasus engine, first aircraft to be built on the Vickers principle of "Geodetic" construction for the Royal Air Force created a world's non-stop record flight of 7,162 miles Ismailia to Darwin, Nov. 1938.





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#### **EDITOR:**

WING COMMANDER C. G. BURGE O.B.E., q.s., R.A.F.

Assisted by an Advisory Committee of R.A.F. Officers and the Liaison Officers of the Dominions

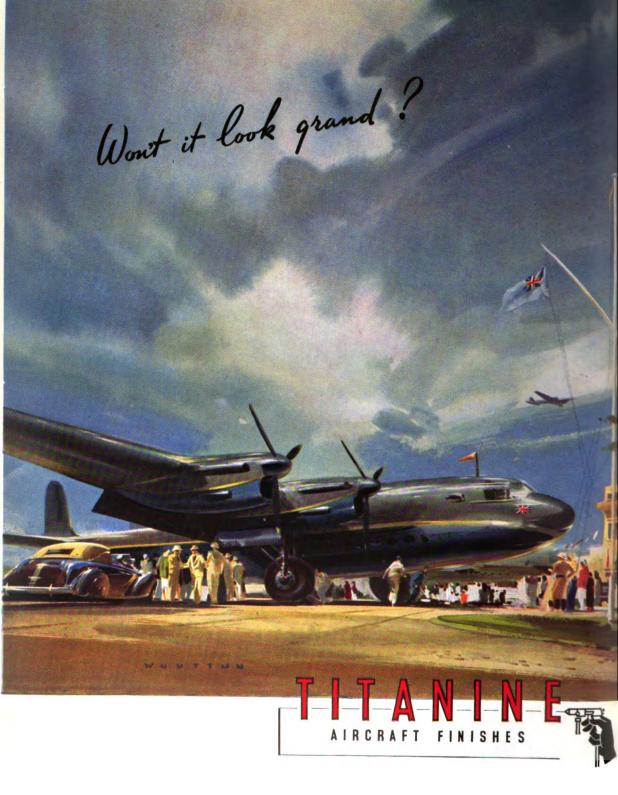
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# THE ROYAL AIR FORCE QUARTERLY

VOLUME XV

**JUNE, 1944** 

NUMBER 3

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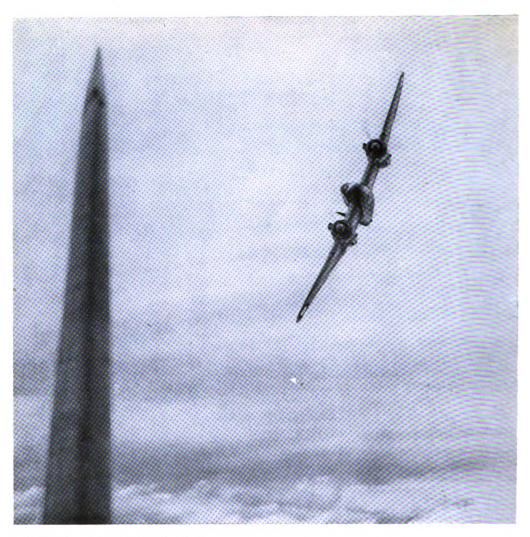
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#### **EDITORIAL**

#### **Post-War Problems**

THE address delivered by General Smuts on the occasion of his visit to Birmingham on 19th May is reproduced in full in this number of the QUARTERLY. This address has been hailed by the Press as one of the finest utterances by the statesman-soldier who "brought to his wide-ranging survey of the forces at work in the contemporary world both realism and vision." (Other addresses delivered by General Smuts during his previous visits to this country during the past few years have also been reproduced in full in the journal.)

Following closely on this address came the Prime Minister's Foreign Survey in the House of Commons on 25th May. Mr. Churchill announced the intention of the Allies to create a World Council after the war to protect the weak against aggression, and said that it would be invested with adequate force of arms.

That part of his statement dealing with the post-war problem is reproduced in full in this number.

Mr. Churchill once again alluded to the Atlantic Charter as remaining "the guiding signpost, expressing the vast body of opinion among all the Powers now fighting together against tyranny." The eight articles of the Atlantic Charter are therefore put on record in this number for easy reference.

#### The World Monetary Plan

A debate on the Monetary White Paper took place in the House of Lords on 23rd May. Lord Keynes, one of the financial experts who drew up the world monetary plan, told the House that the scheme was the first beginning of international collaboration in the economic field. He listed five major advantages for this country from the proposals:

1. It was clearly recognized that during the post-war transitional period we were entitled to retain any war-time restrictions and special arrangements within the sterling area. We could also retain any others which were helpful to us without being open to the charge of acting contrary to any general obligations into which we had entered.

2. When we were again strong enough to live year by year on our own resources we could look forward to trading in a world of national currencies which were interconvertible. For a great commercial nation like ours that was indispensable to full prosperity.

3. The wheels of trade were to be oiled by what was, in fact, a great addition to the world stock of monetary reserve, which would be distributed in a reasonable way. The quotas were not as large as under the clearing scheme, but they were substantial and could be increased subsequently if the need was shown.

4. The Americans had offered a far-reaching form of protection against the recurrence of the main cause of deflation during the inter-war

vears.

5. A proper share of responsibility for maintaining the equilibrium of balance of international payments was squarely placed on the creditor countries.

Viscount Simon, the Lord Chancellor, replying to the debate, said that four main principles were involved in the scheme. These were:—

1. The establishment and maintenance of a reasonable stability in exchanges. By this both buyer and seller might know the value to put on the goods with which they were dealing.

2. Provision for the orderly adjustment or

readjustment of exchanges.

3. Provision for temporary financial assistance for a country which found itself in a situation of emergency because of serious adverse balance of credit.

4. The above principles and practices to be effected through an international monetary institution which could not impose its will but

was a forum for consultation.

"The Government does not say that it approves of all that is contained in the document or is committed to its terms," said Lord Simon. "We should be guilty of betraying our trust if we did not urge that the discussions should go on."

#### R.I.A.F.

A suggestion put forward recently in the Evening Standard that the R.A.F. and Dominions Air Forces be amalgamated into a Royal Imperial Air Force has been taken up by the B.B.C. There is to be a discussion by R.A.F. and Dominions officers, whose talk will cover the war-time strides made by the Dominions air forces, the Empire Training Scheme, the R.A.F. and what they all owe to each other.

Appropriately in this number of THE ROYAL AIR FORCE QUARTERLY we publish the first of a series of articles on the Dominion and Colonial air forces overseas. This series of articles will endeavour, within the limits of secrecy imposed. to indicate the magnitude of the effort and of the many outstanding and magnificent achievements of the Dominion and Colonial airmen and units serving with the R.A.F.

In this number we deal first with the Royal

Canadian and Royal Australian Air Forces. The series will be concluded in the next number with articles on the air forces of New Zealand, South Africa, Rhodesia and India.

#### Disabled Persons (Unemployment) Act, 1944

An Act to make further and better provision for enabling persons handicapped by disablement to secure employment, or work on their own account, or for purposes connected therewith.

The selection of persons registered as handicapped by disablement for vocational training and industrial rehabilitation courses and facilities provided under the Act for enabling these persons to obtain employment, or to undertake work on their own account (whether because employment or such work would not be available to them or because they would be unlikely to be able to compete therein on terms comparable as respects earnings and security with those enjoyed by persons engaged therein who are not subject to disablement) is left to the discretion of the Minister, but in submitting their names for engagements, he will secure that, so far as consistent with the efficient exercise of his powers, preference shall be given to persons of the following classes:—

(a) Men who have served whole-time in the armed forces of the Crown or in the Merchant Navy or the Mercantile Marine; and

(b) Women who have served whole-time in any of the capacities mentioned in the First Schedule to this Act.

These women Services include the following:

"(8) Member of Princess Mary's R.A.F. Nursing Service or any reserve thereof.

"(9) Member of the W.A.A.F.

"(10) Women employed with the Medical Branch or the Dental Branch of the R.A.F. with relative rank as an officer.

"(11) Member of the V.A.D. employed under the Air Council."

# Increased Financial Provision for Members of H.M. Forces and their Families

(Command Paper 6521 presented to Parliament in April, 1944.)

The main features of the measures on which H.M. Government have decided as affecting personnel in the Royal Air Force are as follows:—

1. Where there is a child or children in the family an increase from 25s. to 35s. in the mini-

mum payment made to wives of other ranks.

2. Allowances for children of other ranks at a flat rate of 12s. 6d. a week instead of on a scale descending from 9s. 6d.

3. Increases in the allowances for wives and children of married officers with families and the extension of ante-natal allowances to officers (flight lieutenants and below).

4. An increase from 18s. to 22s. in the minimum unit standard for the assessment of War

Service grants to families.

5. An increase in the minimum war pension for a widow with children (or over 40 or incapacitated) from 26s. 8d. a week to 32s. 6d. a week, together with certain increases in rates paid to widows with children (or over 40 or incapacitated) of officers in the lower ranks.

6. An increase in the rate of children's allowances for the children of deceased other ranks to a flat rate of 11s. a week instead of a descend-

ing scale from 9s. 6d.

# "R.A.F. Quarterly" Prize Essay Competition

In place of the Prize Essay Competition for this year, prizes are offered for—

(a) Contributions to the discussion of any one of the following subjects:—

(i) A Royal Imperial Air Force;

(See preceding Editorial Note under this heading.)

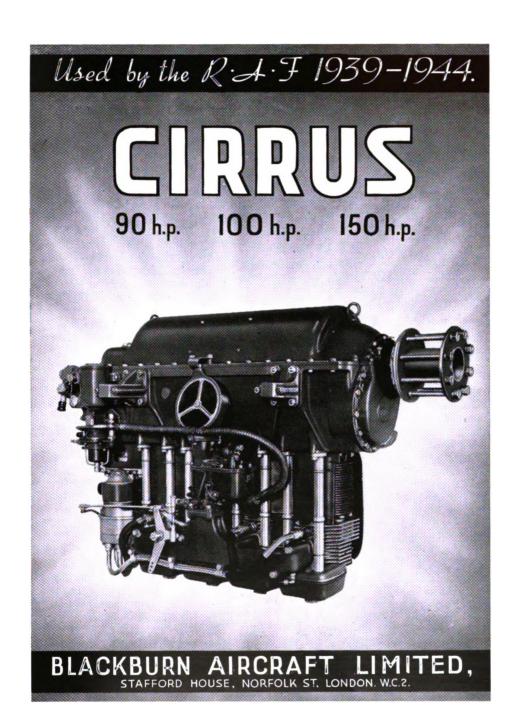
(ii) Education for the "Habitual Vision of Greatness."

The Services are more united than any other body of men in the country. Their calling unites them, and their tradition, and their propinquity. This cohesion makes them readily susceptible of education.

The Services, educated deliberately to the "habitual vision of greatness" would be the cultural backbone of the country. They would be the most instructed, valuable and, in the end, most productive element in the whole community.

Great Britain and the Commonwealth of Nations are faced with the problem how to organize, in co-operation with other nations, a structure of peace backed by adequate force to prevent future wars. The Services composed of men and women educated to the "habitual vision of greatness" would become a task force "more splendid and more lasting than any feat of arms," upon which the peace of the world might be habitually secured.

See articles dealing with this subject pub-



lished in this number. Books recommended for study:—

"The Future in Education" and "Education for a World Adrift," by Sir Richard Livingstone.

"A Time for Greatness," by Herbert Agar.

- (b) Articles on—
  - (i) War Experiences.
  - (ii) War in the Air.

#### Conditions.

- (i) The number of words should not greatly exceed 5,000.
- (ii) The competition will run until 30th November, 1944.
- (iii) Prizes to the total value of £60 are offered and will be allotted as under:—

For the best article in each of the above categories (a) and (b)—
First Prize, £20.

Second Prize, £10.

In addition to these prizes a fee of £10 10s, will be paid for all entries published in this journal.

News from Westminster.

#### Plans for the Demobilized

FROM OUR PARLIAMENTARY CORRESPONDENT. T seems unlikely that the Government will disclose their demobilization plan until some time nearer the date at which it will be possible to put it into operation. Questions to Ministers in the House of Commons on the subject have not elicited any information beyond the fact to quote Mr. Churchill on 4th April—that "the Government do not consider the present as being a timely occasion for discussing demobilization plans." Mr. Arthur Greenwood, leader of the Parliamentary Labour Party, speaking outside the House, has said that he believes the Government favour the principles of age and length of service, which he thinks will be more effective in practice than "first in, first out," which, in his view, would be unworkable. The Prime Minister's answer quoted above was given to a question by Lord Hinchingbrooke, who asked whether a bonus would be given to members of the Forces on demobilization in order to place them in the same position as civilians who had saved out of comparatively high wages earned in industry.

Sir James Grigg, the Secretary of State for War, was asked a similar question with particular reference to those men who had been obliged to leave the Forces through no fault of their own, and he replied that the question was one the Government had very much in mind.

Mr. Bevin, Minister of Labour, replying to a

question on 4th May, said that the employment interests of men who might be detained in the Far East after the end of the war in Europe would not be overlooked, and he pointed out that the Reinstatement in the Civil Employment Act safeguarded the interests of men in the Forces, however long their release might be delayed. Asked if he would bear in mind giving men detained in the East an equal chance of getting the pick of the jobs available, Mr. Bevin said he could not go into the whole scheme of the Prime Minister's demobilization proposals, in answer to a question.

While the Government are reluctant to reveal their plans there is no doubt that a good deal of thought is being given to demobilization, and it is clear from what Mr. Churchill said in his broadcast in March that every effort will be made to avoid the mistakes of 1918-19. The problem is complicated, of course, by the fact that the war divides itself into two parts, and the apparent certainty that the defeat of Japan will take longer than that of Germany. Certain plans to cope with men and women in the Forces on their release have already been announced. Two Acts relating to this question have lately reached the Statute book—the Reinstatement in Civil Employment Act, which lays obligations on employers to re-engage their old staff, and the Disabled Persons Act, which provides for industrial rehabilitation and training of the disabled, both in the Forces and industry. A plan has also been devised for the industrial training of non-disabled men and women released from the Forces or from war work. The details were given recently in answer to a Parliamentary question by Mr. McCorquodale, Joint Parliamentary Secretary to the Minister of Labour. Here is the full text of his statement: -

"As part of the resettlement scheme and as a means of furthering the supply of skilled workers in industry to meet abnormal deficiences in the post-war period, industrial training will be introduced to assist men and women released from war service who are in need of a course of training to enable them to obtain employment of a kind likely to lead to permanent resettlement. having regard to their capacity and to the estimated probable needs of industry. In order to provide opportunities for those who are the last to be released from the Forces, the training scheme will be continued until the end of the demobilization of persons who have served during the period of hostilities. The scheme will apply to men and women released from the Armed Forces, Merchant Navy, Civil Defence Services, National Fire Service, Police Auxiliaries and Civil Nursing Reserve and to persons

whose war service has been on other types of work of national importance, including industrial work. In administration of the scheme special care will be taken to ensure that men and women who have served in the Armed Forces and are eligible for training under the scheme receive their training as early as possible after release from the Colours, and, if at any time the facilities for training are insufficient to meet the needs of all applicants without delay, men and women released from the Forces or from the Merchant Navy will, in general, be admitted first.

"For those within the scope of the scheme the broad conditions of eligibility will be: (1) that a period of full-time service in work of national importance has been served during the war; (2) that by reason of such service the person concerned has either (a) been unable to start or complete training for a skilled occupation, or (b) suffered interruption in the following of his occupation; (3) that he is in need of a course of training to enable him to obtain employment of a satisfactory kind, having regard to his general

capacity.

The training will be given in Government Training Centres administered direct by the Ministry of Labour and National Service and also, under arrangements made by the Ministry, in consultation with the Board of Education and the Scottish Education Department, in Technical Colleges, or in other educational institutions. During training adequate allowances, including supplementary allowances in respect of dependants, will be paid. The allowances will be the same, irrespective of the trade for which the individual is being trained. Arrangements will also be made where appropriate for training in employers' establishments under suitable financial arrangements. Training in agricultural occupations will be provided by the Departments of Agriculture. The detailed application of the training scheme to the different industries will be worked out in full consultation with the representative organizations of employers and workpeople concerned. The Government's proposals for training adults for the building and civil engineering industries after the war have already been announced and the details are under discussion with representatives of the industries. The educational and vocational training given inside the Services will, as far as possible, be co-ordinated with the training to be given. after release from the Forces, under the scheme set out above."

FORESTRY AND LAND WORK.—Another scheme in which the Government is taking an interest concerns the formation of a Forestry Corps. This

is being worked out by the Forestry Commission and present intentions are that the Corps shall consist of 25,000 to 35,000 men recruited from those demobilized. The Corps would be available for work in State forests and private woods and it is suggested that men should engage for a term of, say, six months in the first instance with provision for the release of any man who may find suitable civil employment at any time. There would be opportunities for transfer to permanent forestry work for those who wished to make a career. This assurance was given in a written Parliamentary answer on 3rd May by Sir George Courthope, who represents the Forestry Commission in the House of Commons. Sir George said the Commissioners were aware of the interest which Service men were taking in the prospects of forestry work after the war and plans were being made to meet the demand. The names of suitable candidates were being recorded and literature was being recommended. There was only a limited demand for forest officers but arrangements were being made for courses at those universities which provide degrees in forestry, and suitable Service personnel were eligible to benefit through the Government Further Education and Training Scheme. For foresters the number of apprentice schools under the Commission would be increased and short courses arranged for ex-Service men who wished to enter State or private service. These courses would begin as soon as circumstances permit.

Members of both Houses are being made aware of the interest which serving men are displaying in the possibilities of land work of all kinds. Recently the Minister of Agriculture had his attention drawn to the fact that some of our prisoners of war are taking correspondence courses in agriculture, and he was asked if there would be opportunities for them when they came home. He hoped there would, but could give no definite information. In a recent debate in the House of Lords on the future of smallholders, two peers mentioned that they had received many letters from men overseas anxious to know about post-war prospects. Lord Elgin, who is Chairman of the Land Settlement Association, under which, before the war, many unemployed were started on small-holdings and have since done very well, believes that the Association's scheme offers some good opportunities. Lord Addison, leader of the Labour peers, insisted that demobilized men who wished to work on the land should be properly trained so that they should not be plunged into a life of dull servitude and ruin which was the lot of many inexperienced men who sank their gratituties in small-holdings after the last war.



# GIPSY ENGINES

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#### The Royal Canadian Air Force Overseas

M.C., Canadian Minister of National Defence for Air, was able to tell the House of Commons in Ottawa that the British Commonwealth Air Training Plan in Canada had trained 86,000 men—48,000 of them Canadians, the rest from Britain, Australia, New Zealand and other parts of the British Commonwealth—as air crew; that the R.C.A.F. then had more than forty operational squadrons serving outside the dominion; that the total strength of the service was more than 200,000 all ranks.

To those who remembered the dimensions of the service in 1939, the minister's figures represented something of a miracle. The R.C.A.F. had boasted fewer than 4,000 men (in the permanent force and the auxiliary air force combined) when war began. It operated from just one or two bases at widely separated points in Canada, possessed virtually no combat aircraft, and had devoted its time mainly to aerial surveys of inaccessible territories in Northern Canada and to anti-smuggling patrols off the coast. It was a long way from those days to the spring of 1944, when Canadian bombers operating from British bases could drop twice as big a tonnage of bombs on Germany in a single night as the Luftwaffe had ever dropped on London in its biggest operations of 1940-41. (Canadian squadrons carried more than 5,000 tons of bombs to enemy targets in March, 1944, and dropped over 1,000 tons in one night in April.)

Canada's air effort during the first four years of the war had been so immense that the estimated expenditure of more than \$1,000,000,000 on the R.C.A.F. in the financial year 1944-45 was considerably bigger than the entire Canadian budget in an average peace-time year, and nearly two-thirds of the dominion's total war expenditures during 1914-19. The expansion had been made possible by two important factors: firstly, the large measure of air-consciousness enjoyed by the Canadian people during the pre-war years (although this had been directed more at civilian flying than at any expansion of the R.C.A.F. before war broke out), and, secondly, the ingenuity of the nation's construction industry, which had been able to build a great number of training stations, all complete with 800-yard asphalt runways, heated hangars, and elaborate snow-clearing equipment, in a matter of months. (The entire system of training schools provided for in the original joint air training plan agreement of 1939 was completed in less than two years, many

months ahead of schedule, and was expanded by subsequent agreements until the 74 schools at first projected were increased to 154.)

The people of Canada had been conditioned to the acceptance of air travel as the normal means of getting about, largely through the dominion's geography. It is well known that Canada measures 3,000 miles from coast to coast; what is not so well known, and what is much less obvious on the map, is that only a narrow strip of its territory—a strip that is bounded on the south by the U.S. frontier and stretching only 200 miles or so to the north—is reasonably well populated and served by an adequate railway network.

The northern portions of Quebec, Ontario, Manitoba, Saskatchewan, Alberta and British Columbia, together with almost the whole of the North-West territories and the Yukon, are virtually inaccessible to surface transport. In the earlier days this was a matter of small importance, since the land is extremely rocky and therefore not suitable for cultivation; and the fur trappers who found their living there travelled by canoe, dog-team and snow-shoe. But in the 1920's it was discovered that these forbidding regions were scattered with mineral deposits of unbelievable variety and richness—gold, nickel and radium being the most important. There was only one practical method of transport into the mining sites, and that was by air. To construct railways would have involved many years of work and colossal expense, since the ground is not only practically solid rock but also broken by thousands of lakes.

These lakes, which were chiefly responsible for making railway construction practically impossible, solved most of the problems of flying. In the summer, floatplanes could operate from any of the bigger ones; in the winter, after the water had frozen, the same lakes became natural landing-fields from which the floatplanes could still operate by exchanging their floats for skis. By this method the equipment for whole mines, and often many of the comforts of a twentieth-century town, were flown into the Canadian north. The airport at the city of Edmonton, in Alberta, for instance, which was the main jumping-off point for Northern Alberta and the North-West Territories, for many years handled more air freight than any other airport in the world; on almost any day, articles of air freight ranging from large slabs of mining machinery to pianos and cases of whisky, could be seen being loaded into transport aircraft ready for an air journey which might be 1,000 miles or more.

Against this background, and despite the fact that enlistment in the R.C.A.F. provided only few opportunities owing to the restricted size of the Service, many young Canadians looked to the air for their career. Practically every city of 20,000 people or more had its airport and its flying club. Flying instruction at the clubs was subsidized by the dominion government so that it was comparatively inexpensive to qualify for a private or even a commercial licence. Most of the young men who had so qualified became the first war-time enlistments into the R.C.A.F., and the flying clubs which had taught them in the peace-time years were given the task of operating the elementary flying schools of the training plan. A great many worked their way to England on cattle boats and other types of freighters to take the short-service commissions which the R.A.F. was offering to men from the dominions during the years of its limited expansion immediately preceding the war.

From among these "Can-Raf" officers were selected the pilots of the "All Canadian" squadron of the R.A.F., which was formed shortly after the outbreak of war and which, by the end of the Battle of Britain, had destroyed eightyseven enemy aircraft during its combats in France and over South-East England. Their commander, who was not a Canadian, was to become one of the most famous figures of the war-Wing-Commander Douglas Bader, D.S.O., D.F.C. In the Battle of Britain the squadron fought only seven major engagements, but in those seven combats destroyed sixty-four enemy aircraft. A member of this squadron, Pilot Officer W. L. McKnight (who was reported missing in 1941) became the first outstanding Canadian fighter-pilot of the present war, with a total of sixteen and a half enemy aircraft to his credit, a record which won him the D.F.C. and bar before the end of 1940.

The history of the R.C.A.F. Overseas proper begins with the arrival in Britain in February, 1940, of the first complete R.C.A.F. squadron, a unit which had been built around the No. 110 "City of Toronto" Squadron of the Auxiliary Air Force. The intention was that this formation should be employed on army co-operation duties with the two Canadian divisions which were in England at the time, but since these divisions did not get into action on the Western Front before the collapse of France the squadron was denied contact with the enemy for a considerable time. After being twice re-equipped—once from its original Lysanders to Tomahawks and later from Tomahawks to Mk. I Mustangs—the squadron finally began regular operations which took the

form of tactical reconnaissance sorties in Northern France and, occasionally, "train-busting" expeditions which were very popular with fighter and fighter-reconnaissance squadrons in 1942 and 1943.

In June, 1940, two further complete R.C.A.F. squadrons arrived in the United Kingdom. One of these, No. 1 Canadian Fighter Squadron (the designation has since been changed to conform with R.A.F. practice in squadron identification and to avoid confusion) was promptly equipped with Mk. I Hurricanes and two months later was fighting in the Battle of Britain from a station in the London defence ring. Hitherto untried in battle, its pilots fought well and hard throughout the weeks of the Luftwaffe's daylight attack, and when the squadron was finally retired to a northern station for a rest, had been credited with thirty-four enemy aircraft destroyed. The third squadron, also largely consisting of permanent force and auxiliary air force personnel, did not become operational until the spring of 1941, by which time Fighter Command was chiefly concerned with flying sweeps over Northern France.

These three squadrons were a token force only: but until the end of 1943, when a number of complete squadrons which had seen operational service on the Canadian east and west coasts and in Alaska were sent to Britain, they remained the only three formations which had been sent over complete. The remaining Canadian squadrons (there were more than forty altogether by April, 1944) were formed from R.C.A.F. aircrews who had been trained under the joint training plan and sent overseas in drafts of increasing size and frequency from the autumn of 1940 onwards, together with Canadian ground-crews sent over for the purpose of providing administrative and maintenance personnel.

There were numerous advantages in the formation of all-Canadian squadrons. Morale among men who were serving thousands of miles from home was improved by the fact that they were serving side by side with other Canadians and under Canadian commanding officers; and the Canadian people took pride in the knowledge that Canadian squadrons were taking their share in the air war.

The first of these new squadrons was formed on 1st March, 1941, equipped with Curtiss P-40 Tomahawks which were, however, shortly exchanged for Spitfires Vb. This squadron, now known as the "Wolf" squadron, has proved to be the most successful R.C.A.F. Spitfire formation of the war, and has destroyed a remarkable number of enemy aircraft, especially consider-

g that all its fighting has been done over enemy rritory.

Other squadrons of varying types and designed r all the operational commands were formed intervals during the ensuing months. The iginal plan was for twenty-five R.C.A.F. squadons overseas, but before this figure had been ached the objective had been increased to irty-eight, so that the process of forming new juadrons continued and now, with further nanges in the final aim, has still not been cometed. Many of the squadrons have been adorned ith colourful names: Buffalo, Lynx, Demon, oose, Cougar, Falcon, Imperials, Swordfish, loose, Snowy Owl, Red Indians, Flying Yachtsen, Tiger, Alouette, Bison, Lion, Bluenose, hunderbird, Porcupine, Ghost and Wildcat re among them. Most of the names refer o characteristic Canadian animal names. Many, oo, have been adopted by Canadian towns nd cities, the people of which send shipnents of cigarettes, candy, clothing and other omforts. Some of these squadrons have taken he name of the cities which have adopted them, .g., "City of Edmonton," "City of Sudbury, nd others. It has been proved that specific lesignation in this manner (as distinct from lesignation by a number which may not be pubicly revealed) has a great influence in increasing esprit de corps and pride in the formation.

Nevertheless, the flying personnel posted to R.C.A.F. squadrons represented only a minority of the total number of Canadian air crews serving outside the dominion. (Major Power said in March, 1944, that 48,000 Canadians had been trained for air-crew duties up to that time.) The majority were serving in R.A.F. formations throughout the world, and after the initial strangeness of their surroundings wore off, these men found a valuable broadening of their experience in mixing with those who came from the British Isles or the other dominions of the Commonwealth.

#### Administrative and Financial Difficulties Resolved.

This extraordinarily wide dispersal of personnel throughout many hundreds of units of various kinds created a tremendous administrative problem. The administrative procedure of the R.C.A.F. is modelled on that of the R.A.F. (the Canadian K.R. Air and Manual of Air Force Law are both copied from their British counterparts) but in detail there are various differences, some of them important. Chief of these is the difference in pay which, in general, is considerably higher in the R.C.A.F. than in the R.A.F. When Canadian personnel first began arriving

overseas, the agreement governing this question provided that the British Government pay all members of the R.C.A.F. the amount to which their equivalent ranks in the R.A.F. would be entitled. The difference between this amount and the R.C.A.F. pay of rank was credited by the Canadian Government to a deferred pay account (maintained in Ottawa) in respect of each man.

Financial responsibility for R.C.A.F. squadrons (other than the three original squadrons sent over as complete units, which were the subject of a special clause in the original joint airtraining agreement) was also shared between Britain and Canada. Most of the maintenance costs fell on the shoulders of the British Government. This financial arrangement obtained until April, 1943, when a new agreement came into force. By the terms of the modified plan, the Canadian Government undertook full financial responsibility for the air force which it had sent overseas. It assumed the whole burden of pay of its personnel, whether they were serving in R.C.A.F. or R.A.F. formations. The old system of deferred pay was abolished; officers henceforth drew their full pay of rank and all allowances provided under R.C.A.F. financial regulations. Other ranks drew their Canadian pay, less a considerably smaller amount of deferred pay than had been deducted hitherto; and all assignments to dependants were offset against this deferred pay account, so that if an airman or N.C.O. assigned an amount greater than his deferred pay, no further deductions were made from the amount he received.

Canada also assumed full responsibility for the maintenance of its squadrons overseas; this responsibility included the purchase of aircraft and spares together with all administrative services. These changes in financial responsibility cost the Canadian Government more than \$300,000,000 in the first year of its operation.

It was recognized fairly early in the war that many of the Canadians dispersed throughout the units of the R.C.A.F. would encounter personal problems bearing on their Service life which could best be resolved by the R.C.A.F. itself. The first approach to this problem was the appointment of travelling personnel liaison officers who toured the United Kingdom to bring assistance to any men with problems. As the war progressed, however, and as the output of Canadian air crews from the training plan increased, the whole problem became much more widespread. Accordingly, in 1942, a series of R.C.A.F. District Headquarters was established in Great Britain, as well as one in Cairo (which was to look after the interests of the great numbers of Canadians serving in the Middle East). The network

of these district headquarters was later extended to India, North Africa and Italy as R.C.A.F. personnel spread themselves over these areas, too. The undertaking to pay all Canadian personnel involved the establishment of base accounts units throughout the United Kingdom and the war areas; these were set up ready for the change-over to the new pay policy in April, 1943.

The important aspect of all these administrative arrangements was that they were administrative only. The operational command of all R.C.A.F. personnel and formations overseas remained in the hands of the R.A.F. That is to say, although Canadian squadrons (and, later, Canadian fighter wings and a bomber group) were built up, and were under command of R.C.A.F. senior officers, their operational duties were still assigned to them by the R.A.F. through the operational commands. The air officer commanding-in-chief, R.C.A.F. Overseas, although his administrative powers were considerably increased by the changes which have been outlined here, nevertheless left operations to the R.A.F. This principle of unified command for all operational purposes, which had been established in the original training-plan agreement, was never changed or modified; and there need be no emphasis on the benefit which the R.A.F. received by the addition of many thousands of air crew, in addition to more than forty complete squadrons, to its battle order without any division in the unity of command.

The first squadrons formed overseas, largely with R.A.F. ground crew until replacements became available from Canada, began to take their share of operations in the early summer of 1941. It was on 19th August, 1941, that a Canadian squadron, later to become known as the "Wolf" Squadron, won its first considerable victory on an offensive sweep. The victory was won over fifteen Messerschmitt 109 Fs. near St. Omer; the Canadian pilots destroyed five of the enemy aircraft for the loss of one Spitfire, the pilot of which was picked up by Air-Sea Rescue. Before this time, however, a Canadian Wellington bomber squadron had been formed and had flown its first operation in June, and other squadrons in bomber, fighter and coastal command were in process of formation. By the summer of 1942, the R.C.A.F. had more than twenty squadrons in operation overseas.

One flying-boat squadron had gone to Ceylon in the spring of that year and there took up its duties of patrolling the Indian Ocean and the Bay of Bengal on reconnaissance against enemy shipping. Shortly after its arrival one of its Catalinas, piloted by Squadron Leader L. J. Birchall,

sighted a Japanese task force, including aircraft carriers, sailing towards Ceylon. A brief wireless message to Colombo warned the defences there that an attack was imminent, and the ensuing Japanese attempt to bomb the island capital met with very heavy defeat and severe losses. Birchall became known throughout the island as "the man who saved Ceylon," and a fund was opened in his honour; but he had never returned from that operation, and was, together with his crew. reported missing. Almost a year later it was learned that he was a prisoner of war. He was awarded the Distinguished Flying Cross.

The summer of 1942 found all branches of the air arm exceptionally busy. Daylight sweeps, which had begun with a handful of bombers escorted by large formations of fighters to targets a short distance inland from the French coast, increased in frequency and size, and the Canadian fighter squadrons (of which, by this time, there was a considerable number) found more and more to do as the summer went by The season's operations culminated in the assault on Dieppe by a force which included a considerable number of Canadian troops. All the Canadian fighter squadrons were employed on that day, and the "Wolf" Squadron again distinguished itself by destroying five enemy aircraft; other fighter squadrons of the R.C.A.F. also did well.

The commander of the "Wolf" Squadron at this time was Squadron Leader Leslie Sydney Ford, who was among the first graduates of the British Commonwealth Air Training Plan to become commander of an operational squadron. He had enlisted as an AC2 and had, on arrival overseas, joined the squadron at the time of its formation, but had left shortly afterwards to go to another R.C.A.F. squadron equipped with Hurricanes. This unit pioneered the Hurricane bomber, and while flying with it as a junior officer Ford had established an excellent record. When the squadron finally relinquished its Hurricanes for Spitfires Vb day fighters, Ford had gone as a flight commander to a new squadron of the R.A.F. being formed with Hurricane bombers.

Here, Ford swiftly proved himself brilliant Among other exploits, he was credited with sinking an enemy destroyer with bombs from his Hurricane, as well as with inflicting damage on several trawlers and small merchant vessels. He finally returned to the "Wolf" Squadron as its commanding officer a few days before the Dieppe operation. The squadron had had a bad summer. Several of its key pilots had been shot down, and on one occasion a few weeks previously five aircraft had been lost in a single operation, so

nat a complete reorganization had been necesary. This reorganization was under way, and ne training of new pilots had been taken in hand then Ford assumed command; but it was his ispiring and extremely energetic leadership hich resulted in the squadron's brilliant victory t Dieppe. When, a few months later, the "Wolf" quadron, still under Ford's leadership, became art of a R.C.A.F. fighter wing which had reently been formed, his efforts to turn the squadon into a closely knit, expert fighting unit were o successful that his unit was among the most fficient Spitfire squadrons in fighter command or the greater part of the summer of 1943. Ford imself was promoted to wing commander and ook over command of another R.C.A.F. wing; e had held this appointment for only a short hile when he was shot down while attacking nemy E-boats from low-level in the North Sea, nd was posted as missing. He held the D.F.C. nd bar.

The wing in which his former squadron flew was mainly concerned with the escort of Flying Fortresses to targets in France and the Netherlands. It flew under the leadership of Wing Commander J. E. Johnson, D.S.O. and bar, D.F.C. and bar, an Englishman whose affection for his Canadian pilots was so strong that he carried 'Canada' flashes on the tunic of the battle-dress which he wore while flying. Johnson was probably the best wing leader and certainly the most successful individual pilot of the summer of 1943; while leading the Canadian wing, he raised his total victories to twenty-five, and his wing led all other wings in Fighter Command with astonishing consistency over a period of several months.

By this time the R.C.A.F. boasted an increasing number of officers among its flying personnel who could be classified as veterans. Many of the graduates of the training plan who had arrived overseas in the later months of 1940 and during 1941 now had behind them a great quantity of operational experience. The obvious result of this was that the leadership of Canadian squadrons, which previously had perforce been given to Canadians in the R.A.F. and to Englishmen, could now be left to members of the R.C.A.F. The policy of "Canadianization," which meant simply the establishment of 100 per cent. (as nearly as possible) R.C.A.F. personnel in Canadian squadrons, could now be put into effect, since large numbers of air crew and ground crew were already overseas and available for posting. The implementation of the Canadianization policy, in fact, was among the terms of reference for Air-Marshal Harold Edwards, C.B., when he left Canada for the United Kingdom late in 1941 to

become Air Officer Commanding-in-Chief, R.C.A.F. Overseas.

Discussions between Major Hon. C. G. Power, M.C., Canadian Minister of National Defence for Air, and the British Air Ministry in the summer of 1942 resulted in the decision being taken to form an all-R.C.A.F. group within the structure of Bomber Command, together with an undisclosed number of fighter and fighter-reconnaissance wings, each consisting of two or more R.C.A.F. Spitfire or Mustang squadrons.

The Spitfire and Mustang wings went into operation very shortly afterwards, and have been operating ever since, for the most part under Canadian wing leaders. Formation of the bomber group was a much more complex problem. At the time the decision to form it was taken, there were only one or two R.C.A.F. bomber squadrons in the United Kingdom, and to create a group involved not only forming a considerable number of new squadrons, but also posting from Canada a great number of ground personnel to man the squadrons, stations and headquarters of the group to perform all the ancillary services necessary to a formation which is at least equivalent to a full army division.

Nevertheless, the formation of the requisite number of squadrons was immediately set afoot, and proceeded so rapidly and successfully that the group was able to commence operations as a component of Bomber Command at 0001 hours on 1st January, 1943. One of its most successful squadrons, now famous in Canada as the "Alouettes" ("The Skylarks," after the most noted of all French-Canadian folk songs), was formed largely of French-Canadian personnel. This squadron, which served as part of a Canadian bomber wing in North Africa during 1943 as well as in the group in Britain, lost only thirteen aircraft in more than 1,000 operational sorties during its first year's operation; its original commanding officer, who formed the squadron from scratch, was Wing Commander J. W. G. St. Pierre, who came from a French-Canadian family at St. Eustache-sur-le-Lac, in the province of Quebec. He is one of the few members of the R.C.A.F. holding the American D.F.C., which was awarded him as a result of his excellent leadership of the squadron during its duty in North Africa.

The Canadian group, under command of Air Vice-Marshal G. E. Brookes, C.B.M., O.B.E. (who was succeeded in the spring of 1944 by Air Vice-Marshal C. M. McEwan, M.C., D.F.C. and bar) immediately began operations. Canadian bomber squadrons in Britain and North Africa dropped over 18,000 tons of bombs during 1943. But in 1944, by which time all the Canadian

squadrons formerly equipped with Wellingtons had been converted to Halifaxes or Lancasters, the tonnage began to increase sharply. Eight thousand tons were dropped during the first three months of the year-5,000 of them in March alone—and on one night in April (the night of 20th/21st April) Canadian bomber squadrons themselves dropped almost 1,000 English tons, thus more than doubling the biggest tonnage ever dropped on London in a single night by the Luftwaffe. The financial effort alone of maintaining a bomber force on such a scale was immense for a nation of only 12,000,000 people. It had been estimated that the big February attack on Leipzig, when the R.C.A.F. lost eighteen bombers (out of a total of seventynine lost by Bomber Command) cost the Canadian taxpayer not less than six million dollars. Set against this was the knowledge that Canada had now become the fourth largest air power among the United Nations, and that her bomber force was stronger, though less great in numbers, than the biggest that the Luftwaffe could ever concentrate against England.

#### TWO OUTSTANDING PERSONALITIES.

Individual exploits among Canadian bomber crews are far too numerous to find a place in this record, which must be confined rather to a recounting of the broader developments. Canadians, who have been engaged on the bombing of Germany for a very long time now, have won a great number of decorations for their courage and excellence. Some men, however, are outstanding and famous personalities. Wing Commander John E. "Moose" Fulton, D.S.O., D.F.C., A.F.C., a Canadian who had taken a short service commission in the R.A.F. before the war after long experience as a "bush" flyer in Northern British Columbia, was the original commanding officer of one of the early Canadian bomber squadrons, which ever since has borne his name and is known throughout Canada as the "Moose" Squadron.

Fulton had won the A.F.C. for a spell of skilled and courageous experimental flying, and the D.F.C. for bomber operations when he took command of the Canadian squadron on its formation in 1942. His leadership during the few months that he commanded the Canadian unit was so inspired that, despite the fact that he has been missing since the summer of 1942, his name is still a legend, and seems likely to remain a legend long after the war is over. Bomber veterans, and hundreds of ground-crew personnel, still say proudly, "I served under the 'Moose.'" The statement is enough to arouse envy in the

mind of any hearer. The morale of his squadron. and the intensity and singleness of its purpose. was of the highest order throughout the period of his command. One night his aircraft did not return from an attack; the last word that was ever heard was a brief wireless message which said: "Wounded . . . Fighters . . . Five hundred feet." His position was fixed as some distance off the Dutch coast, and every crew in the squadron, including all those who had just returned from that night's operations, demanded to ke allowed to take off again and make a search Permission, however, was refused as Air Sea Rescue were already conducting a search; but no trace of Fulton's Wellington was ever discovered. His D.S.O. was announced a few days later.

Equally famous in Bomber Command is the name of Group Captain John E. Fauquist D.S.O. and bar, D.F.C., who is a veteran of Path finder operations as well as of regular bomber duties. Like Fulton, Fauquier was also a bush flyer. He ran his own air transport service in the mining regions of Northern Quebec and Ontario in the days before the war, and at the time of his commissioning in the R.C.A.F. had flows around 300,000 miles over the inhospitable northern territories. For some time he commanded a R.C.A.F. Wellington bomber squadron and was awarded the D.F.C., and then, after a rest in Canada, returned to resume command of the same squadron, which now became part of the Pathfinder force. Fauquier attacked the problem of training his crews in this extremely complex technique with great vigour and efficiency. He was an exacting commander for whom nothing less than the best would suffice The result was that he built a squadron which was first-class in every way. His own courage was such that it won him the D.S.O. and bar during the time that he was engaged on these special operations.

#### PARTICIPATION IN COASTAL COMMAND ACTIVITIES.

R.C.A.F. participation in the activities of Coastal Command spread to both sides of the Atlantic, since the squadrons of the Canadian Eastern Air Command work in close co-ordination with Atlantic patrol squadrons based in the United Kingdom, several of which are Canadian About twenty-five per cent. of all Atlantic convoy escorts during 1943 were flown by Canadian flying-boat and Liberator squadrons based on either side of the ocean. There were occasions when very long range Liberators based in Canada were diverted from their home bases to bases in the United Kingdom—a good indication of

the extreme range at which these aircraft are

able to operate.

In addition to these duties, Canadian coastal squadrons equipped with long-range Beaufighters, Hudson bombers, Hampden torpedobombers, Wellingtons carrying depth-charges, and Albacores have contributed their measure to the endless offensive against the enemy's surface and submarine craft.

For many months the most spectacular R.C.A.F. coastal squadron, and indeed one of the most spectacular units in all Coastal Command, was a formation flying Hudson bombers on strikes against enemy shipping. It was, and still is, known as the "Demon" Squadron. The "Demons" became operational in October, 1941, and were originally led by Wing Commander "Monty" Styles, D.S.O., D.F.C., an English member of the R.A.F. whose leadership was nothing less than brilliant. Under him, the Canadian Hudson crews rapidly perfected the technique of attacking enemy shipping from mast-height in the face of intense anti-aircraft defences. They became so expert at this that in their first three months' operations, from October to December, 1941, they attacked 150,000 tons of enemy shipping, a Coastal Command record. When, after a rest, they returned to operations in May, 1942, they celebrated the occasion by attacking 83,000 tons in a single month -another record. This second record was achieved under the leadership of Wing Commander A. C. Brown, a Canadian who had won the D.F.C. during the Battle of France (when he was flying with a Blenheim reconnaissance squadron) and who was awarded the D.S.O. after he finished his tour of duty with the "Demons," whom he often personally led against enemy convovs.

The technique by which the "Demons" achieved their successes was no less spectacular than the successes themselves. Skimming the waves of the North Sea as they sped towards their targets, they would make their bombing runs at extremely low altitude, release their bombs and leap-frog over the masts of the ships which they were attacking. The life was hard on the aircraft and crews. Hudsons would often come limping home with great holes torn in the wings, the control surfaces shot away, sometimes with one motor out of action. On one occasion one of the aircraft had its bomb doors ripped off in collision with the mast of an enemy merchant vessel.

A brief description of two of the "Demons'" operations in May, 1942, will serve as an illustration of their methods:—

One night Wing Commander Brown and an-

other pilot were on reconnaissance patrol when they sighted the convoy and immediately signalled its position back to base. Brown then divebombed one of the ships and had to take violent evasive action to escape the intense flak which was being thrown up from the escort vessels. More Hudsons, which had been despatched in response to Brown's signal, reached the scene just as dawn was breaking, and the anti-aircraft fire became more intense as the light improved.

Pilot Officer E. F. Paige, captain of one of the Hudsons, pressed his attack home in the teeth of the fierce barrage, and was seriously wounded in the back by a flak-burst which also demolished his instrument panel. Despite this, he flew the aircraft home and landed it. Flying immediately behind Paige was Flight Lieutenant Ralph M. Christie, who dropped two bombs on a 5,000-ton vessel and also had to struggle home with a damaged aircraft, one engine of which had stopped after being hit by flak.

Two or three days later the "Demons" and a detachment of the Royal Netherlands Naval Air Service attacked a convoy of ten freighters, strongly escorted. Christie led one formation; the second was led by another Canadian, Pilot Officer F. A. Kay. Kay's formation reached the convoy first, and the leader made his attack at the customary mast-height. His aircraft was hit several times by flak and he himself was wounded in the hand. Nevertheless, he continued his run and released his bombs. Then another flakburst wounded him again, but he reached the English coast with his badly damaged aircraft before both engines stopped.

By the time Christie's formation arrived over the convoy the enemy defences were in full blast. Christie, leading the formation into the attack, was met by terrific fire. His aircraft was hit in the wings, fuselage and tail. All the instruments and the hydraulic system ceased to function, and the observer was wounded. But the bombs found their mark on a medium-sized freighter, which blew up and caught fire. The strong defences shot down four of the Hudsons, but three of the enemy vessels were hit and left burning. Kay received the D.F.C. and Christie the D.S.O. He was the first member of the R.C.A.F. to receive this award in the present war.

One individual exploit by a Hudson crew from the "Demon" Squadron is in itself outstanding. Squadron Leader W. B. "Lucky" Cooper, one of the squadron's flight commanders, was on a reconnaissance patrol when he sighted three enemy ships off Den Helder. He attacked the three vessels single-handed. He made three bombing runs. The first bomb missed. With the second bomb he hit the second ship,

which sank, and then flew around again and sank the third. After that, having no more bombs left, he flew around for the fourth time and attacked the remaining ship with machine-gun fire.

The first Canadian in the present war to win the D.S.O. twice over was Wing Commander Lloyd V. Chadburn, a young Canadian fighterpilot who led a R.C.A.F. Spitfire wing during the summer and autumn of 1943. Chadburn was the first graduate of the British Commonwealth Air Training Plan to be given command of an operational squadron; he had commanded the R.C.A.F. "City of Oshawa" Squadron during 1942, and had received the D.F.C. for his leadership of the unit during the air fighting over Dieppe on 19th August that year. Both the D.S.O. and the bar to that award were awarded him for leadership of a Canadian wing which included his old squadron. During his leadership the wing destroyed forty-four enemy aircraft for the loss of one pilot on operations, and scored one of the best victories credited to a fighter squadron during 1943 by destroying nine enemy aircraft for the loss of one Spitfire in a single operation (while escorting Marauder bombers).

The great majority of the large numbers of Canadians serving in the Middle and Far East are scattered through units of the R.A.F. As mentioned earlier in this survey, however, a Canadian flying-boat squadron has been operating in Ceylon since the spring of 1942, and in the Mediterranean theatre a Canadian Spitfire squadron, which arrived in the Middle East in the early summer of the same year, accompanied the 8th Army on its march from El Alamein to Tunis, then crossed to Malta in preparation for

the Sicilian campaign, began operations from a Sicilian landing-ground shortly after the invasion of the island, and eventually moved to the Italian mainland behind the 5th Army. This squadron has to its credit the first enemy aircraft to be destroyed over the Anzio beach-head after the Allied landings there.

As preparations for the invasion of Europe proceeded in Britain during the spring of 1944. the R.C.A.F. also made preparations to put in its maximum effort. One group in the 2nd Tactical Air Force was largely Canadian, with R.C.A.F. Spitfire, Spitfire-bomber (the first such aircraft to be used from British bases), Mustang and Typhoon wings all operating as part of the group. The opening of the so-called "Second Front" was awaited by the fighter pilots with some impatience, since for several months the Luftwaffe had appeared only rarely in the coastal areas normally covered by Spitfire operations. In the meantime, the R.C.A.F. bomber group continued to participate in the very large operations of Bomber Command on Germany and occupied Europe.

By the middle of April, 1944, Canadians in the R.C.A.F. alone (not including Canadians in the R.A.F.) had won 1,833 awards of all kinds. These were divided as follows: D.S.O., 13; Bar to D.S.O., 3; D.F.C., 719; Bar to D.F.C., 40; second Bar to D.F.C., 3; C.G.M., 6; D.F.M., 327; G.C., 2; G.M., 11; M.C., 1; M.M., 1; C.B., 9; C.B.E., 10; O.B.E., 16; M.B.E., 50; B.E.M., 70; A.F.C., 93; A.F.M., 36; A.R.R.C., 4; Mentioned in Despatches, 358; Commendations, 60; Foreign Awards, 12.

#### The Australian Air Effort

THE RECORD OF AUSTRALIAN OPERATIONAL SQUADRONS SERVING WITH R.A.F. COMMANDS

#### **PERSPECTIVE**

HEN the subject is as widespread as the Royal Australian Air Force, perspective is not easy. To obtain an accurate picture a map of the world is needed, for, though offence and defence, like proverbial charity, begin at home, the R.A.A.F. is incredibly scattered.

But before thinking in terms of geography, turn back to the beginning.

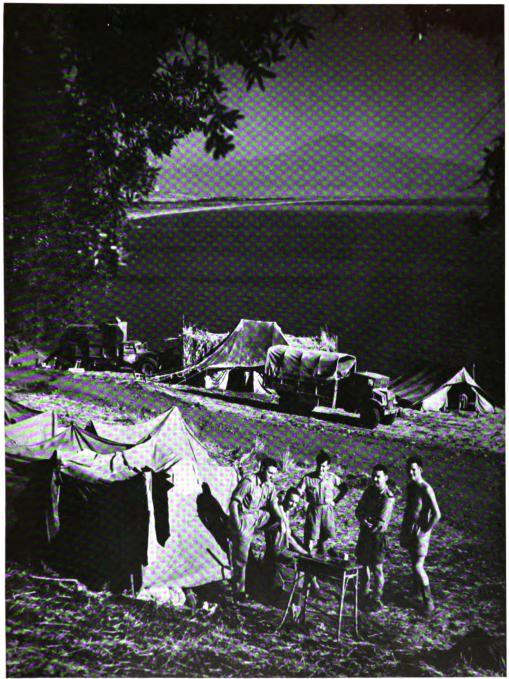
The R.A.A.F. was born on 31st March, 1922. Its parents were the Royal Air Force, to whom it owes everlasting debt for a splendid tradition, an unsurpassed basic organization, and substan-

tial material aid, and the Australian Flying Corps which played a valiant role in the war of 1914-18.

With such parentage it was natural that the child should become vigorous, alert, courageous and independent.

Security still forbids a clear statement of facts and figures, but the disclosure that for every member serving in R.A.A.F. squadrons in the European and Middle East theatres there are at least three R.A.A.F. men serving in R.A.F. squadrons tells a significant part of the story.

R.A.A.F. air crews have been trained in Australia, Canada, Rhodesia and in Great Britain.



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A GENERAL VIEW OF THE DESERT HARASSERS CAMP IN SICILY. The Australians camped on this hillside overlooked the Bay, with Mount Etna in the distance.



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CPL. J. CLARKE FROM MULEGA, N.S.W., CPL. TREVOR MEARE FROM PARAMATTA, PITCHING ''BIVVY'' TENT PRIOR TO OPERATIONS IN SICILY.

They have been on active service in places as far removed as Iceland and the Solomon Islands. They are fighting to-day from Northern Australia, New Guinea, the Pacific Islands, India, Burma, Palestine, Sicily, Corsica, Italy and Great Britain.

It is this picture of the operations of the R.A.A.F.—a picture that shows clearly how a very substantial proportion of its strength is operating thousands of miles away from its main headquarters—that must be drawn before the job it is doing and the difficulties it has had to overcome can be seen in true perspective.

The R.A.A.F. is a very proud Service, but it is not without its humility. It watched with ardour and admiration the magnificence of the R.A.F. when the Luftwaffe thought to overthrow it in those bloody, desperate but completely glorious days of the Battle of Britain; it did more than watch, it fought and bled too, for though members of the R.A.A.F. were not yet in Britain, Australians were among the men of the R.A.F., and the Commonwealth was proud to share the cost and the glory.

When the Japanese struck, the R.A.A.F. learned humility anew—humility that taught it lessons that will never be forgotten. But out of the ashes of that humility rose a splendid phænix—a bird with the same indomitable fire, the same spirit of dauntlessness that distinguished the R.A.F. eagle battling over Britain.

The Japs have learned since to respect and to fear the R.A.A.F., whom they had thought to scorn not so very long ago in the days when they struck against Malaya to overthrow the gallant but insufficient squadrons that flew to do battle with them; when they struck against Rabaul and were met by a handful of Wirraways whose crews went down in a game but hopeless fight, in which, though no claims could be verified, several enemy aircraft were presumed to have been shot down.

What the Japs probably have never fully realized is that this same staunch little aircraft, the Wirraway, which they discounted as an opponent in the air, has probably done more in its way to account for their now heavy losses at the hands of the men of the R.A.A.F. than any other aircraft,

One day off the north coast of New Guinea, in December, 1923, when the Battle of Buna was at its height, a Wirraway shot down a Zero. The combat, a matter of minutes, was a happy combination of good fortune, and quick thinking and courageous action on the part of the R.A.A.F. pilot.

That single victory, the only one of its kind on record, was symbolic. It symbolized the spirit

of the R.A.A.F. in opposition to the Japs, and it symbolized the value of the Wirraway in terms of the fighting skill of the R.A.A.F.

Though the Wirraway may have failed as a front-line combat aircraft it won magnificently as a trainer. An R.A.A.F. catchphrase is: "If you can fly one of those —— things you can fly anything." It has uncommon truth for a popular saying. The Wirraway is a very good but difficult aircraft for the pupil-pilot to master. It has a high-speed stall. But when he has mastered it his basic standard of flying has not very much wrong with it. It is to the high quality of that basic training that the men of the R.A.A.F. owe much of their success and the enemy quite a lot of his failures.

Here in Britain, Wirraway-trained air crews take their place in the fight. They are proud to know that the magnificent standard set by the men of the Royal Air Force is not too high for them. In that very fact there is true comradeship, and out of the comradeship of battle there has come something infinitely valuable, something that counts well against the bitterness of war, something that seals the union of British airmen throughout the world.

And so, when the perspective becomes clear, the truth, too, comes clear. To the men of the Royal Air Force the men of the Royal Australian Air Force acknowledge a great debt and at the same time claim with pride a not inconspicuous contribution to the now assured Allied victory in the air.

#### (i) FIGHTERS AND FIGHTER-BOMBERS

When war broke out a young Australian Flying Officer was sent across to France with No. 1 Squadron of the Advanced Air Striking Force. His name soon became a byword for fearlessness in the air. He had enlisted in the Royal Australian Air Force in 1935, and in 1937 had taken a short-service commission with the R.A.F. This Australian, Flight Lieutenant Leslie Radford Clisby, D.F.C., was one of fifty trained pilots that Australia had agreed to supply to the R.A.F. every year. After 1937 the R.A.A.F. selected fifty Australians a year for nomination for commissions in the R.A.F.

So when Clisby went across to France in 1939 he was only one of many Australian pilots serving in the British Air Force. He was first stationed near the Maginot Line in France, not far from where the late "Cobber" Kain, the New Zealand ace of No. 73 Squadron, was operating.

Through the years, the stories about "Leo the Lion," as Clisby was called, have multiplied and grown, and it must be admitted that some are

of very doubtful parentage. But this one is authentic. Three days before his fatal crash, the Australian had his Hurricane's rudder shot away in a rear attack by a Messerschmitt, after he had shot down three other Me's. As he was coming down Clisby saw a Heinkel in front of him. Firing a burst at it, he forced the enemy aircraft down and both planes landed almost together.

The Germans were first out of their aircraft, but Clisby scrambled out after them, drew his revolver and chased them across rough fields, firing as he ran. This was too much for the Huns, who surrendered and were promptly marched back to a French village where they were handed over to the local police. Clisby made his way unconcernedly back to his squadron.

On 15th May, 1940, his Hurricane was seen going down in flames but, by that time, he had shot down fourteen enemy aircraft—ten of them in eight combats.

Throughout his career Clisby clung to his tattered dark blue R.A.A.F. uniform which regulations permitted him to wear until it was worn out. "It will see me through," he assured a war correspondent who knew him well. He was still wearing it that last day at Rheims.

Clisby attended a gunnery school in England with another Australian, Flying Officer H. N. Fowler. These two were great pals and were known to everyone on the station as "The Diggers." Though Fowler went across to France in Gladiators in November, 1939, they never met again.

On the day that Fowler's flight received Hurricanes (10th May, 1940) the German flood began pouring across Holland, Belgium and Luxemburg. From then the days passed rapidly to the fall of France and the evacuation of Dunkirk. During that time men of the R.A.F. worked a hectic 14- to 15-hour day. Even at night there was little peace, for the fighter airfields were frequently attacked by bombers. Everyone was on duty from dawn to dusk, and the Nazi divebombers and Heinkels, escorted by hordes of Messerschmitts all in perfect formation, continued to come across in great masses.

Many pilots' stories are, basically, the same as Fowler's. Overwhelming numbers, a parachute jump, mistaken identity by the French peasants, long treks with small companies of French infantry separated from their unit, divebombing on roads and eventual capture.

In 1942 Fowler escaped. He returned to this country with a story that must wait until the war is over, but he could tell of other Australian airmen whom he had met in the German prison camps. Two of them were "old originals" of Point Cook, the big R.A.A.F. station in Aus-

tralia which gave their first training to so many Australian airmen who played their part in those early battles.

Of those others, one at least must necessarily be mentioned for his tenacity and courage. Flying Officer R. L. Glyde, D.F.C. (presumed killed in action) graduated rapidly at Point Cook but was eventually rejected by the R.A.A.F. because of a crooked spine. He took treatment, came to England and joined the R.A.F. He was credited with four enemy aircraft in the Battle of France and is spoken of for his "great dash and offensive spirit."

The story of Australian participation in the Battle of Britain is parallel to that in the Battle of France. Australians in the R.A.F. were there too. One of them, Wing Commander G. C. Olive. D.F.C., when on coastal patrol work in Spitfires, saw the last stages of the victorious German break-through in France. Looking down on the masses of tanks, guns and men streaming westward, he said: "I simply could not see how Britain was going to hold them off when the attack came."

Yet Olive was one of the pilots who helped Fighter Command to do just that: to hold them off. Later he commanded one of the first R.A.A.F. squadrons.

Of the other Australians, many lost their lives Flight Lieutenant P. C. Hughes, D.F.C., was killed when he collided with the wreckage of an enemy plane which he had just shot up, but in eight days of August, 1940, he destroyed eight Hun aircraft and had a total of fifteen when he was killed.

Three other Australian Battle of Britain D.F.C. winners destroyed at least twenty-one of the enemy—seven aircraft each. Then there was Wing Commander D. F. B. Sheen, D.F.C. and bar, of Canberra. When war broke out, Sheen was serving with No. 72 Spitfire Squadron, the first squadron to intercept enemy aircraft in this war. Later the Australian became the first R.A.F. casualty in this war and the first to shoot down an enemy aircraft at night from a Spitfire. In December, 1939, a flight in which he was flying intercepted a formation of Heinkel 111 bombers heading for the Firth of Forth area. The enemy was turned back, but Sheen was injured in the ear and thigh. Despite these injuries he claimed one Heinkel 111 and made base.

At the end of July, 1940, after a period of Continental photographic reconnaissance work. Sheen rejoined his old squadron. A few days later the Battle of Britain proper began and Sheen served first in the North of England and later over the London and Kent area.

Next month he was in command of a flight

at Biggin Hill: "front line" in the Battle of Britain. He shot down three enemy aircraft and baled out twice—the second time when his aircraft was going down at a terrific speed. Later, he commanded one of Britain's most famous fighter stations.

A few days before the Battle of Britain finished on 31st October, 1940, the then Under-Secretary of Air (Sir Archibald Sinclair) said: "Before the war, 20 per cent. of the pilots who joined the R.A.F. came from the Dominions. To-day the proportion is higher, and a growing one. Our squadrons fight daily beside units of the French, Polish and Czech forces. Now to each of these must be added the stream that is starting from the Empire Air Training. Scheme, which will grow into a torrent of young men from the Dominions volunteering to cross the seas to help us."

By the end of that year the "stream" had begun to flow and less than four months later the first of seven Australian squadrons formed in 1941 became operational. This was No. 452, Australia's first fighter squadron in the United Kingdom.

A day after its official formation, 12th April, 1941, there arrived a dark, keen-faced Irishman of twenty—the inimitable "Paddy" Finucane. With the veteran Squadron Leader Bungey, D.F.C., taking over command in June, 1941, and with Finucane as "A" Flight commander, and later Squadron Leader "Bluey" Truscott, D.F.C. and bar, in command of "B" Flight, the squadron could not have been anything but a successful squadron. From the first sortie, No. 452 showed itself inspired by the experience, enthusiasm and personality of its leaders.

On 11th June the unit met its first hostile aircraft and Finucane marked up the first of his thirty-two "kills." The fighter ace has left us a vivid description of a pilot's thoughts and reactions on just such a sweep: "Before going on a trip I usually have a funny feeling in the pit of my stomach, but once I'm in my aircraft everything's fine," he wrote. "The brain is working fast and if the enemy is met it seems to work like a clockwork motor. Accepting this, rejecting that, sizing up this, remembering that. You don't have any time to feel anything. But your nerves may be on edge—not from fear, but from the excitement and intensity of the mental effort. I have come back from a fighter sweep to find my shirt and tunic wet through with perspiration."

He goes on to tell of the way sleep often eludes a fighter-pilot because he is inclined to re-fight the battle: "The reason is that everything happens so quickly in the air that you crowd a tremendous amount of thinking, action and emotion into a very short space of time and you suffer afterwards from mental indigestion."

Now he talks of the tactical side: "You get to learn how to fly so that all the time you have a view behind you as well as in front. The first necessity in combat is to see the other chap before he sees you, or before he gets the tactical advantage of you. The second is to hit him when you fire. You mightn't get a second chance."

On 21st June, 1941, the Australian squadron was posted to the famous Group No. 11, which had played such a big part in the Battle of Britain. The squadron was in fine fettle. It had well-trained Australian pilots reinforced by five experienced R.A.F. officers. Very few days passed without operations over enemy-occupied territory.

With only a few weeks' experience, No. 452 shot down twenty-two enemy aircraft in August and became top scorer of Fighter Command. What a month that August was. On the 4th, Air Ministry announced that "an Australian squadron, which is one of the most recent newcomers to Fighter Command's ever-growing strength, yesterday shot down two of the day's bag of four Me. 109s." Then, only five days later, the Australian unit got five Me. 109s. Another week and they were making the headline: "Australian Squadron's Six in Six Minutes."

The squadron had been escorting Blenheim bombers to a target inland and was crossing the coast on its way back when eight grey-painted Messerschmitts dived on their tails. Whipping round to meet the attack, the Australians turned the tables, and in six minutes six of the enemy had been shot down at a cost of—one bullethole! Later that day, 16th August, 1941, another two aircraft were destroyed. In the same month, Squadron Leader Truscott got the first of his bag of thirteen "kills," and two probables.

They were great pals, those two top scorers of the squadron—Finucane and Truscott—and they had agreed to work together after the war. With a little luck it might have been, for neither of them was shot down by the fighters against whom they had been so successful. Finucane's aircraft was hit by the million-to-one-chance shot of a ground gunner and plunged into the sea. Truscott lost his life in a training accident.

In September and October, No. 452 retained its position at the top in Fighter Command. Again, in November, it shared the leadership. In those four months the squadron had destroyed fifty-five enemy aircraft.

By the time the squadron was posted to another theatre of operations, it had destroyed or damaged eighty-six enemy aircraft. Probably its outstanding operation took place on 13th October, 1941, when it shot down seven and damaged three enemy aircraft in one sweep.

As evidence of their versatility, they recorded, among other attacks on shipping, an attack on a destroyer escorting the Scharnhorst, Prince Eugen and Gneisenau.

When No. 452 Squadron was rested, Australia's second Spitfire squadron, formed on 16th June, 1941, moved into the front line to take its

place.

Seldom in the history of air warfare has a squadron received a fiercer baptism of fire than this one. The day after they moved in the pilots had their first scramble, and two days later, when escorting R.A.F. bombers raiding Le Havre, they encountered enemy fighters in strength. The squadron's commanding officer, Squadron Leader P. M. Brothers, D.F.C., R.A.F., one of the few non-Australians, bagged the first Hun that day, a Messerschmitt. When enemy aircraft were reported above, Brothers turned left and saw a Hun diving down sun. As the Me. spotted Brothers he pulled up into a steep climb. Brothers pulled up after him, firing for six seconds from 200 yards. Pieces flew off the aircraft, then half its starboard wing broke off and it went whirling down into the sea, leaving a trail of pieces in the air to float after it.

Then only two days later, when the squadron took part in a sweep carried out by the whole wing over Le Touquet and Dieppe, they encountered a score of Huns. The Australians got one destroyed, one "probable" and one "damaged."

In two months the squadron participated in fifty operations which, apart from sweeps, covered escort duties to Bostons and Hurribombers which, in daylight, bombed Le Havre, St. Omer, Dunkirk, Abbeville, Desvres, Rouen and Lille, as well as other specialized targets such as factories, railway yards, docks and airfields.

On 29th April, 1942, the squadron became involved with what are commonly known as "hosts" of enemy aircraft over Cap Gris Nez. At least two "probables" were claimed but all our men returned. From the airfield the pilots were taken by bus to Kenley, where they were presented to the King who, they learned, had listened-in to the whole "show" from the ops. room. "I wonder how much the King heard," whispered one of the Australians.

In May, 1942, the squadron was withdrawn from the front line prior to its transfer to another

theatre of operations.

Typical of the enthusiasm of these first squadrons was the request of Squadron Leader R. E. Thorold Smith, D.F.C., at that time commanding No. 452, that he be allowed to fly with this second Spitfire squadron while on leave. (Early

last year Squadron Leader Smith was killed in an action with Japanese Zeros while commanding an R.A.A.F. squadron based on Darwin, Australia.)

Two weeks after the formation of Australia's second Spitfire squadron in June, 1941, the R.A.A.F.'s first night-fighter squadron was added. Its first commander was Battle of Britain pilot Wing Commander Olive, D.F.C. Equipped with Defiants at its formation, it later began conversion to Beaufighters in the same month as it became operational, September, 1941, but the first few months provided very few enemy sightings. On those occasions when hostile aircraft were sighted scores were marked up.

The squadron's first award came in an unusual way; an aircraft crashed about a quarter of a mile out from the coast, where a very heavy sea was running. Several unsuccessful attempts were made to launch a boat or make a lifeline to the tailplane, where two of the survivors could be seen perched. Sergeant J. J. Plunkett, of Queensland, who had been a member of his local Life-Savers Club, plunged in and got to the rear gunner who was, by then, the only member to be seen. Almost exhausted, the Queenslander managed to get him back to the shore. He also assisted in rescuing two would-be rescuers who had got into difficulties. In the 1942 New Year Honours. Plunkett was cited as a winner of the B.E.M.

In December, 1942, the welcome news came that the squadron was to convert to Mosquitoes and, by January, there were a dozen of the "wooden wonder" planes on strength. Then began several of the most active months of the squadron. One of the first units to use the Mosquitoes as night fighters, the squadron was also employed on a wide range of daylight intruder patrols over enemy occupied territory. On 6th May, 1943, the squadron's most successful crew. Flying Officer "Peter" Panitz, D.F.C., and Flying Officer R. G. Williams, D.F.C., damaged six trains in six minutes. A couple of days later the Air Ministry announced that "two electric trains were stopped at Blois recently by the fire of an Australian pilot who has already this month damaged at least eight trains. Both electric trains were raked with cannon fire and left burning."

The day following the "six trains in six minutes" sortie, two members of the squadron recorded the first engagement with a night fighter. Diving on it and driving it earthwards at great speed they saw, a little later, a great explosion which indicated that the raider had flown straight into the ground.

The Mosquitoes' most spectacular air combat

was probably that over the Bay of Biscay in September, 1943, when four of them sailed into eight Ju. 88s., shooting one down in flames, probably destroying another and damaging a third.

No more revealing commentary could be made of the scope and variety of their work than a copy of the squadron's score board at the end of October, 1943. It read: Five enemy aircraft destroyed, four probably destroyed or damaged; twenty-seven trains, two road transports, three trawlers, three power stations, one U-boat and one minesweeper damaged.

The squadron's first anniversary on Mosquitoes was appropriately celebrated when, exactly a year to the day from its first operation in February, 1942, two members of the squadron, a West Australian and Queenslander, caught a Ju. 88 going in to land at the important Luftwaffe base at Rennes. The first burst of fire was from too long a range, but there was no mistake about the second, when the aircraft was only thirty feet from the ground. The aircraft exploded and crashed to the ground, burning furiously.

Since then the squadron has gone from strength to strength. In five weeks previous to 28th April, 1944, the squadron's night-fighter score was eight enemy aircraft destroyed and one "probable." Of these, five have fallen to the guns of Wing Commander K. M. Hampshire, who won the D.S.O. after a long period of operations carried out as Commanding Officer of an R.A.A.F. Boston squadron in New Guinea during the first half of 1943. There his intense interest in his squadron was reflected in his reputation for having one of the best tropical bases in the R.A.A.F., and partly in his determination to fly with his men on all possible occasions. The commanding officer shot down his first Ju. 88 almost over his own airfield in England.

Landing after a long but uneventful patrol, Hampshire heard that raiders were approaching and, after getting his aircraft refuelled in record time, was airborne ten minutes after touching down.

"After getting a silhouette of a Ju. 88," said Hampshire, "we manœuvred around behind it. I gave it a three-seconds' burst and there was a terrific explosion. The Ju. 88 dived vertically and the fuselage fell just outside the boundary of my own airfield."

The squadron has now flown over 300,000 operational miles and 600 sorties.

Another Australian squadron flying Mosquitoes, converted from Venturas late in 1943 and is now engaged on operations as a unit of the Second Tactical Air Force. In the past few months aircraft of this squadron have been in

the forefront of offensive operations over Northern France.

An Australian squadron, flying Spitfires, is also operating in the Second Tactical Air Force.

Early in 1944 the Spitfires, carrying one 500-lb. bomb, began a series of dive-bombing attacks on "military targets in Northern France." One Spitfire, piloted by Flight Lieutenant E. A. R. Esau, had a narrow escape when it was hit by an A.A. shell which passed through one of the tail-planes, just missing the ammunition. The shell left a hole nine inches wide, but Esau went into a dive, dropped his bombs and returned safely.

This Spitsire squadron was originally located in the Far East. It was subsequently disbanded and began to re-form as a fighter squadron in this country on 9th June, 1942. One of the foundation members was Flight Lieut. J. R. Cock, an Australian who won the D.F.C. in 1940 for outstanding work in Hurricanes in the Battle of France and the Battle of Britain.

The first Australian to command the unit was Squadron Leader (now Wing Commander) J. R. Ratten, D.F.C., who later became the first Empire Air Training pilot to command an R.A.F. fighter wing and who had under him as flight commanders, Flight Lieutenant K. M. Barclay, D.F.C., and Flight Lieutenant D. G. Andrews, D.F.C., who later became the squadron's successive commanding officers.

Andrews won his D.F.C. for a magnificent fight against twelve enemy aircraft which attacked him during one of the many offensive sweeps made by the squadron over enemy-occupied Europe.

As the first five F.W. 190s dived out of the sun at 16,000 feet, just after he had been left behind at a turn and at the rear of the formation, Andrews yelled a warning to the rest of the squadron and broke away. To his dismay the only response was more enemy aircraft which concentrated their unwelcome attentions on him. He called for help but none came—something had gone wrong with his R/T.

From then on, the young Queenslander twisted and turned in a desperate attempt to evade the fire of the twelve attackers. Gradually, unable to break the vicious circle of fire, Andrews lost height until he was flying at "0" feet only two miles north-east of Walcheren, where the ground defences added their weight to the attack. Bullets began to hit the aircraft.

"Then, after almost despairing, the Hun detached four and yet another four of the Me. 190s," said Andrews, and "finally I was left with two only. I turned into one and put a shell in his cockpit. The Me. exploded and fell into the sea. The other one made off at full speed."

There was great excitement when he landed. The ground crew began assessing the damage. More than twenty cannon shells and machine-gun bullets had riddled the aircraft, holed the propellor, both mainplanes, engine, elevators, rudder and one of the legs of the landing wheels. The glycol tank had also been hit and the engine was "just about boiling."

In October, 1943, the squadron showed that it had inherited all the tenacity and purpose of the first Australian Spitfire squadron. On a bright sunny morning, seven of the squadron ran into eight enemy aircraft. They made the most of the opportunity. When the squadron returned the score was four enemy aircraft destroyed and one damaged. Later in the day Flight Lieutenant Ewins, who had been shot down and had seen a further encounter during the day, was picked up in his dinghy and one of his first words when he rang the squadron were: "I got one." So the score was marked up to "five and one."

The squadron's only complaint is that, in its million-odd operational miles and 3,300 sorties, such opportunities as these have been rare.

Just as in other types of operations, there are many Australians flying all kinds of fighters and fighter-bombers in R.A.F. units. In one group of Typhoons alone, there are more than twenty Australians, representing every State in Australia, escorting heavy bombers, carrying out long-range sweeps and being used as fighterbombers. When R.A.F. Typhoons scored their greatest victory in any one engagement against German F.W. 190s, one R.A.F. wing shot down twelve and damaged several others without loss. Two of the twelve were destroyed by a young Australian pilot.

One-time jackeroo, Flight Lieutenant S. E. Calder, D.F.C., is among the most experienced pilots. With a total of more than sixty-five sorties, which have included dive-bombing attacks, close escort duties, sweeps, shipping and reconnaissances, he has attacked airfields, locomotives, and, once, a 1,500-ton destroyer in Dunkerque Harbour. Other Australian Typhoon pilots have attacked and gunned constructional works, dredgers, tankers and flak ships.

An Australian Mosquito pilot belonging to an R.C.A.F. squadron is Flight Lieutenant C. C. Scherf, formerly a grazier in New South Wales, who, until he was taken off flying duties, was his squadron's ace. In two months' operations he shot down seven enemy aircraft and shared the destruction of one of Germany's freak fiveengined Heinkels.

The 26th of February was Scherf's field-day. On patrol, he saw three Ju. 52s. on the ground. He left two of them burning. Twenty miles farther on he and Flight Lieutenant Cleveland, a Canadian pilot, encountered the freakish bi-Heinkel towing two gliders. Cleveland picked off the rear glider and Scherf the other one. As he flew in to attack the bi-Heinkel, pieces of flying debris from the glider flew about him. He shot out two of the five engines and the Canadian went in to finish the attack. Soon the clumsy aircraft was falling out of control and was last seen burning on the ground.

On 5th April, Scherf, who had begun a spell of ground duties at Headquarters of A.D.G.B., returned to his squadron to make "just one more trip." It was costly for the Luftwaffe. Flying over France, he destroyed two enemy aircraft in the

air and left three burning an the ground.

These are two only of the many R.A.A.F. men to-day flying Spitfires, Mustangs and Typhoons. The story is the same when the pages of the war years are turned back. Then they flew Hurricanes and Whirlibombers, Hurribombers and Beaufighters. Of these men, there is room only to mention two, as typical of the type of activity in which many members of the R.A.A.F. were engaged. Flying Officer E. L. Musgrave, since killed in action, won his D.F.C. for a particularly daring attack on a medium-sized armed sea-raider which was endeavouring to sneak through the English Channel. This vessel had been fitted out in the Baltic, and on 8th February was observed on her way under escort of a Sperrbrecker and other armed ships.

At hight, on 10th February, 1943, Musgrave was directed to attack her as she passed through the Straits of Dover on her way to the Atlantic. The conditions could not have been worse for the attacker or more favourable for the enemy. Thick mist and rain obscured everything. The attacker would need good luck to sight the vessel. He did, however, and soon his Whirlibomber. with two 250-lb. bombs and four cannons was

diving steeply in attack.

The raider was so close inshore, probably no more than a mile, that his first attempt was frustrated mainly by the searchlights and coastal defences of Boulogne.

As he came in a second time a screen of heavy fire burst from the defences on shore and ships. but Musgrave persisted, his eye on the clearly visible wake of the ship.

Without a bomb-aimer, he had to go right in to be certain of hitting the target and, as he released the bombs the Whirlibomber screamed between the masts of the ship. It was left so badly damaged that, when attacked two nights later, it was on its way back to Germany—one raider less in the Atlantic.

At 26, Squadron Leader H. T. Armstrong.

P.F.C. and bar became the first Empire Air raining Scheme pilot to command an R.A.F. quadron in the United Kingdom. Early in 1942 e began to make his mark as a Spitfire fighterilot. In January of 1943 he added a bar to his P.F.C., his citation stating that his total of kills" was then nine, with others probably estroyed. "This officer's keenness to engage the nemy at all times and his excellent escort work ave set an inspiring example to all," was the ibute.

On 5th February, 1943, the Luftwaffe sent over wenty-four bomb-carrying F.W. 190s. and Me. 09s., about six of which penetrated to London hile another sixty carried out diversionary weeps. Eleven of them were shot down and nany severely damaged.

Squadron Leader Armstrong, who had been in he thick of it, shot down two but was posted nissing. He was last seen engaged in a fierce

ir battle over the Channel.

A commentator at the time said: "It was one of the few occasions in the past year which were eminiscent of the Battle of Britain."

Many more Australians than those in the Battle of Britain are playing their part in an equally momentous battle—the Battle for the Liberation of Europe.

#### (ii) BOMBERS.

In June, 1941, the first of a number of R.A.A.F. bomber squadrons was formed in the United Kingdom. Six months earlier, and only a year after the Empire Air Training Agreement had been signed at Ottawa in December, 1939, R.A.A.F. air crew, trained under that scheme, had begun to arrive in this country. But, from the earliest days of the war, many Australians had been serving in Great Britain in bomber squadrons. In fact, by November, 1941, Australians in the R.A.F. had been awarded almost a hundred decorations, of which approximately one half had been won in Bomber Command. The majority of these Australians had received their early training with the R.A.A.F. and had then transferred to the Royal Air Force.

One of the best-known units in which they served was No. 50 Squadron. In the last war it was commanded by Major Arthur Harris (now Air Chief Marshal Sir Arthur Harris, C.-in-C. Bomber Command) when the squadron's call to attack, as an interceptor squadron, was "All

Dingos run."

Probably because of its strong Australian associations the name stuck, and when No. 50 reformed as a bomber unit shortly before this war. "A" Flight, commanded by Squadron Leader D. C. F. Good, a young Australian, revived and took over the old title, "Ye Olde Dingo Flyte."

By April, 1940, history had been made by the squadron when the first award to an Australian airman in this war went to one of its members, Flight Lieutenant Derek French. His citation talks of his courage and tenacity in the face of intense anti-aircraft fire when attacking a German cruiser moored in the Bergen roadstead. By skilfully manœuvring his aircraft, French gave his bomb aimer such a perfect aiming sight that he scored a direct hit on the cruiser.

Next month another award was made: this one to the Australian flight commander, Squadron Leader Good, for his low-level night reconnaissance over Norway. A shell burst in the aircraft cockpit and Good was severely injured. Despite his injuries, he managed to elude the groping searchlights and, taking evasive action against the anti-aircraft fire, completed the sortie. The same pilot had a second narrow escape when his was one of six aircraft which returned from a costly and dangerous raid over Kristiansand.

These missions were typical of those early days of the war, when the German war communiques spoke only of advances. In April, 1940, Flying Officer W. M. Blom, a Tasmanian, led his half section against an enemy motorized column moving along a Luxemburg road. Before he reached his target the aircraft's petrol tank was pierced. Blom was drenched and almost blinded with the fuel, but he pressed on to bomb another enemy concentration. His aircraft was hit repeatedly and was so badly damaged that it was beyond repair when he eventually managed to land it at the airfield. Blom was awarded the D.F.C.

Other awards to Australian bomber crews in 1940 and 1941 reveal the wide scope of their duties. There were daylight attacks on the warships at Wilhelmshaven when the attacking aircraft swept in at twenty feet over wharf buildings; the low-level bombing of the Dortmund Ems Canal against a screen of terrific ack-ack; attacks on the Stavanger airfield and seaplane base through snowstorms; night reconnaissances and minelaying; and every now and then a mention of Australians' activities in Fairey Battle bombers during the Battle of France.

One of the Australians in that almost remote battle which, with names like Stavanger, Luxemburg and Kristiansand, seems to belong to another war, was the late Squadron Leader R. W. Bungey, D.F.C. His citation reads: "This officer has been almost continually engaged on operations since the war began. During operations in France he carried out many bombing and reconnaissance missions and later fought in

the Battle of Britain."

Bungey was only one of several veteran Australian bomber pilots who later commanded R.A.A.F. squadrons: he led Australia's first Spitfire squadron for some months. Squadron Leader A. L. G. Hubbard, D.F.C., was another. Decorated in October, 1940, for bombing operations which included a raid that put the Krupps works out of action for ten days, Hubbard commanded Australia's first Lancaster squadron. He was succeeded by another "old-timer," Squadron Leader K. W. Kaufmann, D.F.C. and bar, who participated in many bombing operations from June, 1940, onwards, including an attack on a Berlin factory.

The first R.A.A.F. Wellington squadron was formed under the leadership of yet a fourth experienced Australian, Squadron Leader R. E. Bailey, D.F.C., who, by early 1941, had made

thirty-two operational missions.

And now, before the history of the R.A.A.F.'s contribution by squadrons is briefly sketched out, two other Australians must be mentioned. In July, 1941, Wing Commander (now Group Captain) H. I. Edwards, a Western Australian, won the V.C. for his magnificent courage in a daylight attack on Bremen. Although he knew that the defenders had been warned of his approach and was fully aware of the great strength of the defences, he led his formation across Germany at "0" feet, carrying away telegraph wires and flying under high-tension wires, to bomb the target successfully through intensive A.A. fire. During that same month, Flying Officer F. A. Wood, a pilot who had been trained under the Empire Air Training Scheme, became the first member of the R.A.A.F. to operate in Flying Fortresses. After several raids he was briefed to bomb over Norway. During the long journey one of his gungers passed out for want of oxygen. The other gunner, in moving across to his assistance, dragged the oxygen mask off his own face and he also collapsed. There was one thing to do: take the Fortress down some thousands of feet. Immediately he did so the Fortress was attacked by a Me. 109, which moved in so close that Wood could see the pilot's grinning face. The Australian was unable to return the fire—the third gunner was out of position for any sort of effective reply —and the Fortress began to fill with smoke when the glycol tank was hit. Deciding, at the last moment, against ordering the crew to bale out, the pilot got back to base and successfully crashlanded the crippled bomber—just after the third engine had petered out!

Australia's first bomber squadron, a Hampden one, which had formed in June, 1941, under the command of Wing Commander Gyll-Murray, D.S.O., completed its first operational sortie be-

fore August was out. During the next eight months the Hampdens worked very hard. The squadron's fifty-nine attacks included eight visits to Essen, six to Hamburg, four to Emden, five to Cologne and one to Berlin. Other targets attacked were Boulogne, Paris, Le Havre and Cherbourg.

In addition, over twenty missions were carried out. The dividend which minelaying operations have paid has only just been announced but it still has to be emphasized that, if monotonous, this work calls for meticulous accuracy. Many flak ships are devoted to the special task of counter-attacking the minelayer. Squadron records of both this and other Australian squadrons like the second Wellington unit, abound in evidence of the hot receptions their aircraft have received.

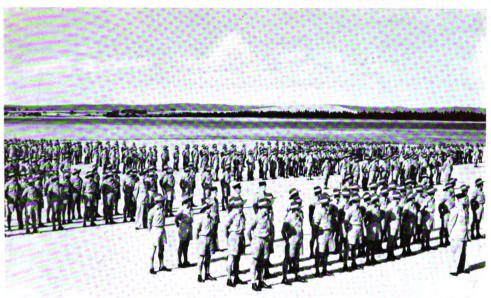
In January, 1942, it was stated that the unit had made a higher percentage of successful attacks on primary targets than any other night-bombing squadron in the group. Then, early in February, they took part in the attack on the *Gneisenau* and *Scharnhorst* while at sea. On that occasion the attackers were forced to go down through a hail of fire to 800 feet to drop their bombs. During the same month they attacked a battleship in a floating dock at Kiel.

How completely the times have changed may be glimpsed from this extract from a description of their raid on the Renault works near Paris. "The sky seemed to be full of planes and it was a miracle that none collided. Hampdens, Wellingtons, Manchesters, Whitleys and Stirlings almost jostled each other out of the way." Not a mention of Lancasters or Halifaxes.

April, 1942, the squadron's last month as a bomber unit, was as busy as any. In the first sixteen days the Hampdens went out on fourteen different operations, which included attacks on enemy transport in North-West Germany, minelaying and bombing attacks on targets like Cologne, Essen and Hamburg. On three successive nights they attacked the well-defended city of Dortmund.

Australia's second bomber squadron, flying Wellingtons, was sometimes out over the same target as the Hampdens. Dusseldorf, Boulogne and Brest were three of the targets they shared. However, much of the work of the Wellingtons differed from that of the Hampdens. Their first target was the docks at Rotterdam and Antwerp, and the succeeding months saw them paying a lot of attention to harbour and shipping installations at seaports like Le Havre, Dunkirk and Calais.

The Wellingtons began forming in September, 1941, under the command of the late Wing Commander N. G. Mulholland, D.F.C., yet another Bomber Command veteran who had flown in



[Crown copyright reserved TRAINEES ON PARADE AT AN AUSTRALIAN FLYING SCHOOL.



WOUNDED READY TO BE TAKEN ON BOARD A PLANE BELONGING TO AN AUSTRALIAN AIR AMBULANCE UNIT WHICH WORKED AT FORWARD POSITIONS ALL THROUGH THE SICILIAN CAMPAIGN.



[Crown copyright reserved]
BOMBING UP A ROYAL AUSTRALIAN AIR FORCE LANCASTER IN PREPARATION FOR A RAID
OVER ENEMY TERRITORY.



[Crown copyright reserved]
AUSTRALIAN GROUND CREW WORKING ON AIRCRAFT BELONGING TO R.A.A.F. SQUADRON
OPERATING FROM MALTA.

August, 1940. Operational by October, 1941, he squadron was congratulated less than three nonths later on its serviceability record of 81 per cent. Then, in January, 1942, the squadron was in the news again when one of its pilots, on his way back from a raid on Dusseldorf, made a lightning low-level attack on an enemy aero-drome.

"We were one of the many homing bombers streaming back over Holland when we saw an aerodrome apparently continuing its night exercises—flare-path lit up, wing-tip lights on. We reckoned that was letting them get away with too much so we glided in on the tail of a Heinkel which was about to land. His two engines must have covered up any noise we made. I think the first he knew of us was when he was blown off the runway by a burst from my front gunner."

After three months' operations in this country, during which it attacked fourteen different targets, the squadron was transferred to another theatre of operations early in 1942.

Two months later, the first of four Australian bomber squadrons to become operational within ten months made its first attack. This squadron, led by Wing Commander A. L. G. Hubbard, D.F.C., flew Wellingtons until September, 1942, when it began conversion, first to Halifaxes, then to Lancasters.

During those six months the members of the squadron had plenty of variety. They attacked most of the important targets in Germany and France, carried out minelaying operations, sea searches, and attacked docks and shipping installations.

The squadron's first big excitement was its participation in Bomber Command's first 1,000-bomber raid on Cologne on 30th May, 1942. There was keen competition between squadrons that night to see who could put out the greatest number of aircraft. An official description of the raid ran: "To saturate the defences of one of the most heavily defended areas in all Germany the attack was to take no more than an hour and a half, with the bombers coming in at the rate of one every six seconds." An hour and a half reads strangely in the light of later fast saturation attacks of twenty minutes or so.

The message read in every briefing room of Bomber Command was calculated to excite the calmest person. Air Marshal Harris's message began: "The force of which you form a part to-night is at least twice the size and has more than four times the carrying capacity of the largest air force ever before concentrated on one objective. You will have an opportunity therefore to strike a blow at the enemy that will re-

sound, not only throughout Germany, but the whole world." It finished up with: "Let him have it—right on the chin."

From that original of the extremely fast saturation attacks the Australians came back with reports of the way it had been handed out "on the chin"—greater fires and mightier concentration of attack than had ever been seen before. And every one of the squadron's twenty aircraft returned safely.

The first D.F.C. of the squadron was won by Pilot Officer (now Squadron Leader) William Brill, of New South Wales, for his part in the attack on the Gnome Rhone works at Gennevilliers.

The squadron's second award went to Pilot Officer A. W. Doubleday, D.F.C., now a Wing Commander recently promoted to command a R.A.F. squadron of Lancasters which was one of the first squadrons to bomb Germany in this war.

The Wellingtons' busiest month was April, 1942, during which they carried out the almost incredible number of twenty-two bombing raids on fourteen different nights, as well as a minelaying mission on a fifteenth.

In its operations on Wellingtons, the squadron participated in sixty-three raids in less than six months, took part in the first three 1,000bomber raids on Cologne, Bremen and Essen, and was out minelaying on thirteen nights.

The squadron's first operation on Lancasters was recorded on the 22nd November, 1942, when Stuttgart was attacked. Since then the unit has flown in most of the major operations of Bomber Command. To-day, its total of 2,700,000 operational miles, almost 17,000 hours, over 2,700 sorties and 9,000-odd tons of bombs dropped, is an impressive one.

In company with the second Lancaster squadron, it was out over Europe from November. 1942, on 138 nights to bomb forty-six different targets. On three of the four November raids on Berlin in eight days, over 300 airmen taking part in each attack came from the two Lancaster squadrons alone.

In one month of last year this first Lancaster squadron flew over 400,000 miles and dropped over a thousand tons of bombs in 270 sorties—proof of the increased striking power of squadrons, when it is remembered that the R.A.F. dropped only 3,500 tons in the first year of war. In late 1943 this same squadron dropped well over one hundred tons of bombs in a single raid.

The constant re-statement of even the most impressive list of targets bombed can become very wearisome, but the following figures are so worthwhile that the risk is accepted with confidence. Since the Battle of Berlin began in November, 1943, this squadron has been out over the German capital seventeen times, often in company with other Australian squadrons. Its bombing missions now total over 200, with Berlin top scorer with twenty-four visits, followed by Essen (seventeen), Duisberg (10) and Hamburg (10). For the rest, the targets, numbering almost sixty industrial and important cities of Germany and Italy, run the complete gamut of night-bomber objectives from Augsburg to Wuppertal.

These operations have seen a hundred stories of courage and devotion to duty written—stories which are reflected in the lengthy list of awards. Of this squadron's 140-odd decorations, over seventy are D.F.Ms., an almost equal number D.F.Cs., and included among them are two D.S.Os., one awarded to Wing Commander C. E. Martin and the other to Flying Officer R. C.

Dunstan.

To choose any one particular story is an invidious job, but Dunstan's is such an unusual one that it must have some mention. Enlisting under age in the Australian Imperial Force, he was wounded outside Tobruk in the Middle East campaigns. After many operations one leg had to be amputated and eventually, on his return, he was invalided out of the Army. He went back to school as a prefect but, tiring of the inaction and having many "cobbers" in the R.A.A.F., he managed to get into the Air Force too—as a rear gunner.

His citation reads: "He has completed a tour of duty as air gunner despite his handicaps, going to his aircraft on crutches and crawling aft to his turret on one leg. He is one of the coolest and most skilful gunners in the squadron and has completed many important missions and has invariably displayed great courage and devotion to duty. He has proved an inspiration to all those with whom he has come in contact."

There always seems to be a fair sprinkling of men from the country in R.A.A.F. bomber squadrons, and most of them have a great fondness for painted mascots on their aircraft. Kangaroos, koalas, kookaburras, blackfellers and the Australian Commonwealth insignia are very popular. The comradeship between air and ground crews is always very close too. One story, perhaps, explains it. A young A.C.1 was seen walking back to a squadron whistling and carrying a ratchet of unusual design. When someone questioned him, he admitted that he had bought the tool for six shillings—the equivalent of two days' pay—so that he could do a special job on his "kite." None of the tools supplied was quite suitable. "That sort of thing," said an air crew

member, "certainly makes a fellow feel good." Some of the ground crew wait up for the return of their own particular aircraft, which they can pick out from others of the same design by the sound of its engines—even before it lands.

On 1st September, 1942, Australia's Ventura squadron began to form. Under the command of Wing Commander R. H. Young, A.F.C., it took part in operations of an entirely different character to those of the night bomber squadrons. Most of its attacks have been made by day and its targets have ranged from enemy shipping, ship-building yards at Rotterdam (three times in two days), and oil-refinery plants in Holland to marshalling yards at Abbeville, docks at Cherbourg and an industrial plant at Zeebrugge.

The squadron's outstanding operation on Venturas, however, was unquestionably its first in December—the low-level bombing of the Phillips radio works at Eindhoven. This factory, employing 15,000 people, had been exceptionally busy on production which was going direct to the German forces. The plant was the most important of its kind in Europe and produced that essential of modern warfare, the radio valve. Owing to the nature and position of the target there was only one way to attack it—from low level—without risking heavy casualties among Dutch civilians.

In broad daylight, the Australian Ventura squadron swept in as the last wave of attackers, plastering the blazing factory with incendiaries and delayed action bombs. They flew so low that the Nazi gunners on the rooftops could be plainly seen.

The considered opinion was that, if anyone's day, it was the navigators'. They had had to keep on a strict course with their landmarks flashing past them in a split second only a few feet below. One of the aircraft arrived back with its bombdoors covered in mud. "You can't go any lower than that with real safety," grinned the pilot. On the way across, the low-flying aircraft startled great flocks of wild fowl and birds, and many aircraft were dented and damaged by them. One pilot came back with what was apparently a lacerated face. A little cold water and a handkerchief proved that it was only the parts of a bird which had penetrated the broken perspex and spattered the Australian's face. At the subsequent party in the mess that evening, many birds' heads made their appearance as mementoes of a memorable flight.

On 10th July, 1943, seven months after its first operation, the squadron made its last operation on Venturas—an attack on the Luftwaffe assembly sheds at St. Omer, where all the aircraft taking part reported direct hits on the target and

eturned safely. At that time the squadron, which had flown over 400 sorties, began conversion to Mosquitoes.

Only two weeks after the Ventura squadron's first operation, Australia's second Wellington equadron flew out in an unsuccessful search for the crew of a Halifax—rather appropriately as, ess than twelve months later, the squadron itself was to convert to Halifaxes.

This squadron, commanded by Wing Commander R. E. Bailey, D.F.C., carried out many minelaying operations in its eight months on Wellingtons, and the following congratulatory message was received from the Air Officer Commanding its group: "On completion of operations on Wellingtons I wish to congratulate you all on the good work you have done. You have established a fine operational record in both bombing and minelaying and, during August, have broken all records for the number of operations completed by any two flight squadrons in this group."

The key-words in that message are "in both bombing and minelaying," for, although it had sown over 300 tons of bombs before it converted to Halifaxes, the list of targets attacked by the squadron was a not inconsiderable one. In the forty-six occasions they had been out, twenty-one different places had been attacked, among them Cologne (three), Essen (four), Lorient (six), and Hamburg (six). Its most active period was probably that time when, with the Australian Lancaster squadrons, they provided over 400 airmen for each of the four devastating Hamburg raids on the nights of 24th, 27th, 29th July, and 2nd August, 1943.

December, 1943, saw the squadron flying Halifaxes in a series of minelaying operations and attacks against Berlin and Frankfurt. The second and third months are less concerned with minelaying, however, and in January, 1944, three attacks on Berlin alone are recorded. Two months later the number of different targets attacked since formation had grown to thirty. Prominent among them were Berlin, Hamburg and Magdeburg, Essen and Stuttgart.

Quite often the Australian bomber squadrons have been out together attacking the same target; for example, on the 20th, 28th and 30th January, 1944, they all attacked Berlin.

On 15th March when, for the first time in its history, Bomber Command put up more than a thousand *heavy* bombers, the Australian squadrons sent over 500 men to bomb Stuttgart.

Not all their raids have been shared by Australian squadrons though. In March, 1944, the Halifaxes were the only R.A.A.F. aircraft in a force of bombers which completely surprised

the enemy at Trappes, about fifteen miles from Paris, where railway targets were attacked. The visibility was so good that railway waggons could be seen being blown up in the bright moonlight.

By March, 1944, the Halifax squadron had passed its first million operational miles and 6,000 hours flown in nearly 1,200 sorties. The squadron's "bag" of ten enemy aircraft destroyed or damaged is indicative of the amount of fighter opposition that is encountered these nights. On one occasion a Halifax was chased all the way from Hanover to Leipzig by three Ju. 88s. The pilot, however, got to the target, bombed and returned safely. The first Australian Lancaster squadron recorded no fewer than eleven night-fighter attacks in two raids in November.

During another raid a crew were caught in a particularly heavy burst of anti-aircraft fire. They heard what they thought was flak smacking into the wings and fuselage, and saw two of their

crew injured by flak splinters.

When they got back, however, the injured men were found to have been wounded by cannon-shell splinters and machine-gun fire. Next morning, closer examination of the aircraft showed that it had been hit in the fuselage, port engine and petrol tank by cannon-shell fire. Apparently, with fanatical persistency, Nazi night-fighters had flown through the heaviest of the flak barrage to attack the bomber, whose gunners were blinded by the flash of bursting A.A. fire.

In all, Australian bomber squadrons have damaged or destroyed almost eighty enemy aircraft, of which thirty are claimed by Australia's

second Lancaster squadron.

This squadron, commanded by the late Wing Commander C. L. Gomm, D.F.C., made its first operation in early 1943, when it laid mines in enemy waters. From then on, however, the squadron concentrated on attacks on major targets in Germany. In January they operated on twelve nights; in February, fourteen; March, twelve, and April, fifteen. Two of the early operations took them on the very long journey to Czechoslovakia, when most of the crews were out for nine hours, or longer. On the return journey several of the crews saw fires burning in Mannheim, which had been attacked the same night by a force which included the Australian Wellington squadron. A month later a large number of aircraft again set out on their long journey to the same target, both leaving and returning in daylight.

In July, 1942, squadron history was made when aircraft of the squadron attacked Cislage—one of two important railway stations near Milan, on which the electrified railways of Italy depend—and continued on to North Africa.

Several nights later, they returned to their base, attacking Leghorn on the way home.

In August, 1943, the squadron was taken over by Wing Commander J. R. Balmer, O.B.E., who had already completed a tour over the jungles of New Guinea as commander of an Australian Torpedo bomber squadron which operated first from Australian bases and later from landingstrips hacked out of the jungle in New Guinea.

On completion of his tour with the second Lancaster squadron he was awarded the D.F.C., and had then a total of almost 5,000 hours peace

and war time flying.

In its fifteen months of operations this squadron has flown over 2,000,000 operational miles and 1,690 sorties in 11,000 hours, has dropped almost 7,000 tons of bombs and participated in over 140 raids on forty-eight targets. Berlin, Essen, Cologne, Duisberg, Hamburg and Stuttgart have been raided sixty times. One of the most recent raids was entirely different to the majority of the mass concentration, high-level bombing raids that have been a feature of their operational career. This was an attack on the aircraft factory at Marignane, near Marseilles, France.

The Lancaster pilots achieved highly successful results in their low-level precision bombing of the target. The intense light of a full moon enabled them not only to identify the factory itself but also the individual buildings. In the bright light, the air crews could see the other aircraft around them as they flew in with their bomb doors open. On their return they were enthusiastic about the results of the attack, but they felt they should wait for the photographic evidence. This, when it became available, confirmed their statements. Photo after photo showed that they had succeeded. Not only was considerable damage done to the factory but flight hangars were badly hit and half of the assembly shops was destroyed. Although, on this occasion, there were no fighters seen, a tiring and constant vigil had to be kept during the whole of the 1,200mile journey.

Another Australian squadron taking part in this raid was the youngest Lancaster squadron. Formed one day and operating over Berlin the next, the squadron was commanded by Wing Commander Rollo Kingsford-Smith, a nephew of the famous Australian aviator, Sir Charles Kingsford-Smith. Since its formation it has attacked thirteen different targets thirty-one times and has already dropped over 1,500 tons of bombs, flown 350 sorties in over 2,300 hours and is approaching its first half-million operational miles. Almost half of its attacks have been made against Berlin. This story is told merely to amplify the average

pilot's laconic comment that "Berlin's no picnic."

One of the squadron's flight commanders was on his bombing run and the bomb-aimer was just saying "Bombs going" when the Lancaster shook so violently that the pilot almost lost control. The lights went out and a fire was reported in the gunner's compartment. A second fire blazed in the port wing.

The first fire was quickly put out, but the one in the port wing looked dangerous, with the flames streaming on past the rear turret. The captain gave the order to the crew to stand by to bale out. Hatches were jettisoned and the rear

door was opened. .

Just as the crew were preparing to abandon the aircraft, the captain noticed that the fire was going out. Countermanding the order to stand by, he set course for home. The navigator worked of his charts and instruments by torchlight until the broken wires were repaired and the lighting restored. After a 600-mile trip, during which the pilot flew without any rudder control, the aircraft landed safely at base.

This youngest Lancaster squadron, with the other Lancaster squadrons and the Halifax squadron, have now flown over 6,000,000 operational miles and 36,000 hours in almost 6,000 sorties, and have dropped almost 20,000 tons of bombs. Awards for gallantry won by these squadrons have passed the 250 mark.

The difficulty of presenting a rounded picture of the contribution of the R.A.A.F. in the bombing offensive is that far more R.A.A.F. men serve in R.A.F. than in R.A.A.F. bomber squadrons. Flight Sergeant R. H. Middleton, the first member of the Royal Australian Air Force to be awarded the V.C. in this war, was the only Australian member of the crew belonging to an R.A.F. squadron. The most highly decorated N.C.O. in the R.A.A.F., Flight Sergeant (now Pilot Officer) N. F. Williams, C.G.M., D.F.M. and bar, was another R.A.A.F. member who served in an R.A.F. unit. In the great dam-buster raid, eight of the thirty-three decorations awarded were won by Australians.

The R.A.A.F. has always been well represented in Bomber Command's pathfinder force. itself commanded by a Queenslander in the R.A.F., Acting Air Vice-Marshal D. C. T. Bennett, C.B.E., D.S.O. On one day taken at random, the total of R.A.A.F. men in Pathfinders ran into three figures.

It was another Australian, Group Captain W. H. Kyle, D.F.C., who recognized the great possibilities of the fast all-wooden wonder plane—the Mosquito—and who gathered around him a group of men whom he could train for the highly specialized job of deep daylight penetra-

tion of the Reich. One of his first squadron commanders was Squadron Leader (now Group Captain) H. I. Edwards, V.C., D.S.O., D.F.C., whose crews included several Australians, among them Blessing, who won his higher award for his brilliant attack on the Karl Zeiss works at Jana, where the finest types of optical instruments were manufactured for the German Army, Navy and Air Force.

"We went very low over the sea," said another Australian, talking of that raid, "and about tree-

top height for the rest of the journey."

As they flashed along on their 1,000-mile journey, mists and heavy cloud rolled up and visibility became nil. They had to fly in tight formation through fairly heavy defences. Then, quite suddenly, as they burst out of the rolling mists into the valley, they were right up against the barrage balloons protecting the works buildings.

"At that moment we were pretty well occupied with some of the most terrific flak I've ever seen," said a Western Australian who had had experience of daylight raids over Berlin and Copenhagen. "Squadron Leader Blessing, however, went straight through the balloons and put

his bombs plumb on the target."

Bomber pilots under training have little opportunity of displaying more than the usual efficiency, but occasionally there are exceptions. Flight Sergeant Fettel belonged to a Bomber Command operational training unit that was almost 100 per cent. Australian. His was so outstanding an exception that Air Chief Marshal Sir A. T. Harris brought the Australian's action to the notice of all ranks of Bomber Command by the following letter:—

"Flight Sergeant M. B. Fettell was captain and pilot of a Wellington, which was engaged on night-flying operations. Flying at a height of 10,000 feet, his aircraft collided with a Lancaster aircraft; the collision caused the starboard engine of the Wellington to droop, and it later became detached; a large hole was made in the bottom of the fuselage near the flare chute, and all electrical equipment failed. The impact forced the forward entry hatch open. The captain ordered the crew to abandon aircraft.

"Flight Sergeant Fettell, with utmost coolness, checked over the equipment of two of his crew before baling out, and assured himself that the remainder of the crew were preparing to abandon aircraft. He then discovered that his own parachute was missing. Despite the knowledge that he must remain in the aircraft, Flight Sergeant Fettell, with a cool calculated courage and sense of duty, continued to supervise personally the fitting of the parachutes and harness of the remainder of the crew. All members of the crew

made safe descents. Flight Sergeant Fettell then attempted to land the aircraft, the starboard engine having broken completely away, but unfortunately overshot and crashed into trees with fatal results.

"Flight Sergeant Fettell's parachute had been resting on the second pilot's seat prior to impact, and it must have fallen out when the forward entry hatch was forced open by the collision.

"The cool courage and sense of duty displayed by Flight Sergeant Fettell was of the highest

oraer."

#### (iii) COASTAL COMMAND ACTIVITIES.

In October, 1939, one month after war was declared, men of the Royal Australian Air Force made their first flight in a Sunderland from this country, when they carried a spare aircraft engine to Bizerta. The contingent to which these men belonged had arrived three months earlier to ferry home Sunderland flying-boats which Australia had bought for the protection of its own long coastline. While the men were still being trained, however, war broke out and the Australian Government generously offered to Great Britain not only the flying-boats but also the personnel for a Coastal Command squadron. On a bitterly cold Boxing Day, 1939, the second contingent of Australians arrived in this country to form No. 10 R.A.A.F. Squadron.

Less than two months later, in February, 1940, members of the squadron flew their first operational sortie. No. 10 had become the first Dominion squadron to operate overseas in this war.

Those early days of No. 10 provided the Australians with a wide range of duties. Primarily, of course, they were concerned with helping to keep the Atlantic sea lanes open. Anti-submarine and convoy patrols figured largely in their record books but there were many other activities as well.

During that first year, too, the squadron was detached over widely separated bases in Malta, Gibraltar, Cairo, Alexandria and Scotland, and reconnaissances were made of Casablanca and the German-occupied French ports.

There were also many air-sea rescues, none of them more colourful than the rescue of a lifeboat full of children belonging to the ill-fated "City of Benares," which was on its way to America with evacuees. The sea was so rough that the pilot could not land. However, he flew low over the boat of excited youngsters, dropped a message saying that he was sending them help and flew off to direct a destroyer to their rescue.

Less than a month later a pilot risked landing in a very heavy swell, drew alongside a lifeboat and took aboard twenty-one survivors of a tor-

pedoed merchant ship.

One of the "diversions" provided by that first year was the refusal of a recalcitrant sea captain to alter course for a certain port. The time-honoured method of warning was adopted—the Sunderland fired a shot across the ship's bows and the captain promptly altered his mind—and course!

There was no doubt about the squadron's first "kill" in July, 1940. A salvo of four bombs dropped by the Sunderland captain, Squadron Leader W. N. Gibson, D.F.C., damaged the frantically diving submarine so severely that it was forced to surface again. When the second lot of depth charges were dropped, the crew of the submarine were seen jumping into the water. Within two minutes of the first attack the submarine had sunk stern first. Forty-one survivors were picked up by surface craft.

The squadron's latest "kill"—Coastal Command's first score for 1944—was equally certain. At six minutes to noon the U-boat was sighted. At noon exactly the enemy's bow rose high in the air after depth charges had been dropped from fifty feet and, thirty seconds later, forty survivors, wearing Mae Wests, were swimming in the water.

Between these two attacks there were almost 120 sightings of submarines, and attacks were made on approximately seventy occasions. Between the 9th and 19th April, 1943, five separate attacks were made, and in three weeks of the following month another five were added. In the squadron's 3,300,000 operational miles and 2,300 sorties flown in 24,500 hours, twenty-three enemy ships and submarines have been destroyed or damaged.

It is sometimes thought that attacks on the enemy's underwater fleet were comparatively uneventful until fairly recently, when protecting fleets of Ju. 88s appeared and the submarines themselves added heavy anti-aircraft armament. It is true that latterly submarines have fought it out on the surface but, from the earliest days, there have been enemy aircraft waiting for an opportunity to counter-attack. As early as May, 1940, several enemy aircraft were seen by No. 10. During the following month a Sunderland interrupted a Heinkel III in the act of bombing a convoy. On the same day another Sunderland damaged a Messerschmitt. Later on in July, six Ju. 88s were sighted within an hour and, says the squadron records, "About this time, enemy aircraft began to make frequent appearances in the West.

Just how frequent those appearances have been may be gauged from these figures: over 200 sightings, and almost ninety aircraft engaged 38 destroyed or damaged. There have beperiods of concentrated enemy aircraft active too. In one hectic period of nine days in Jul-August, 1943, Sunderlands of this squadat were attacked on three occasions by packs f Ju. 88s. Three were damaged before the tra engagement with four was broken off. The secre pack of seven Junkers attacked for over an hou but the captain, Flying Officer B. A. William D.F.C., managed to fight it out, bringing # ship" home with one of the gunners fatta wounded and four other members of the crew in jured. The pilot and two members of the cres were decorated. Five days later a pilot out-manœuvred six enemy aircraft, though his aircraft sustained damage.

For sheer tenacity and courage in fighting against great odds, however, it would be hard to beat the story of "Q" for Queenie, which satcessfully fought an engagement with sixteen Jt 88s. In the opening bursts of fire from the enemy aircraft the rear gunner of the Sunderland was killed, but the captain, Flight Lieutenant J. McCulloch, promptly manœuvred his aircraft into a position where his mid-upper gunner was able to return the fire. One enemy aircraft was seen to be hit and several others were probably damaged.

Eventually the flying-boat gained cloud cover and was able to return to base without further interference, though it was only as the crew came in to land they realized that the port float and after port of the hull were seriously damaged. As the flying-boat touched down, all the available members of the crew scrambled out through the astro hatch on to the starboard wing to keef the damaged float out of the water.

One of the most unusual stories of the war concerns this Sunderland squadron. When one of its pilots was spending fourteen days with the Royal Navy to learn, at first hand, the naval methods of U-boat hunting, he witnessed an encounter between a Sunderland and a surfaced U-boat. The submarine was sunk but it damaged the attacker so badly that the flying boat had to "ditch" in a very heavy swell where, bouncing from one wave to another, it finally plunged downwards. The destroyer meantime raced to the survivors on the tailplane, the only part left above water. To his surprise the Flight Lieutenant found himself helping in the rescue of members of his own squadron!

Several maintenance and flying-hours records are held by No. 10. As is the case with all squadrons, coastal, fighter or bomber, this largely depends on the hard work and keepness of the ground crews. No. 10 is no exception to that

clock" but they probably never bettered that formance when, in seven hours and under ck-out conditions, they removed an old ene and both tested and fitted a new one.

Several of the veterans of No. 10 recently celeated their fourth year in this country. As ough to mark that milestone, aircraft of the adron, on 28th December, 1943, helped to adow German destroyers which were escorta valuable blockade runner in the Bay of scay. In the naval engagement that followed, blockade runner and three destroyers were onk; made possible, said an official message, by consistent accuracy of the positions given by a shadowing aircraft.

In that same action there were aircraft of Ausalia's second Sunderland squadron, formed on nzac Day, 25th April, 1942. Its total of over a fillion operational miles has been flown in 9,500 purs and 850 sorties. In 1943 alone it sank four

-boats for certain.

Like its elder brother, the Anzac squadron bened up 1944 with a "kill" in January. aptained by Flight Lieutenant R. D. Lucas, he Sunderland attacked a fully surfaced subsarine in the face of very heavy A.A. fire. The occurate fire of the nose-gunner made casualties of every one of the ten German gunners, however, and the Sunderland dropped her first load of depth charges. These missed, but there was no mistake about the second lot, which straddled he conning tower. The U-boat simply disinterated, leaving a large patch of oil and a litter of preckage, debris and bodies, both alive and dead.

It was a triumph for both the front gunner and he pilot, who had taken such violent evasive ction that his navigator was knocked out. The bilot was awarded the D.F.C., and the front gunter the D.F.M.

Combats with enemy aircraft have not been beculiar to the veteran Sunderland squadron. The earliest days of the Anzac squadron saw engagements with enemy aircraft and, in fact, four enemy aircraft attacks are recorded before the first submarine sighting. The total of destroyed

The best known of these engagements with enemy aircraft is that in which eight Ju. 88s. attacked a lone Sunderland whose captain, earlier in the year, had successfully fought off four attackers and brought his aircraft home with cannon-shell holes plugged with old pieces of clothing. On this occasion, he managed not only to out-manœuvre the eight attackers but, by skilfully weaving and twisting, to give his gunners an opportunity to hit back at the enemy. Three of them were definitely destroyed, two probably

destroyed, and the remaining three almost certainly damaged.

"I would like Flight Lieutenant Walker and the surviving members of his crew to be told of the admiration and pride which I felt on reading the details of this epic battle, which will go down in history as one of the finest instances in this war, of the triumph of coolness, skill and determination against overwhelming odds," wrote the A.O.C.-in-C. Coastal Command in a congratulatory message.

The D.S.O. was awarded to the captain, Flight Lieutenant C. B. Walker, the D.F.C. to the navigator, and the D.F.M. to the rear gunner.

Alternating with convoy and anti-submarine patrols and air combats with the enemy have been many air-sea rescues. One of the first was carried out on 8th July, 1942, when six members of a shot-down Whitley were rescued. A month later an aircraft detailed to search for another Whitley was attacked by a Ju. 88 and two Arados 196s. Eluding them, the captain went on with his search, located the dinghy, made a successful landing alongside, and took six survivors on board.

On 22nd December, 1942, an unusual accident threatened one of the patrolling Sunderlands. An oil pipe developed a dangerous leakage. The fitter crawled into the wing to the port outer engine. There he discovered the fault, calmly crawled back for the necessary tools and went back again to complete the repair. The only sign of anything unusual at the end of the Sunderland's patrol was a very dirty and oily fitter.

The captain of this aircraft was destined to have many excitements. Months later he sighted four U-boats in one day! In company with two other aircraft he found three submarines fully surfaced. Waiting for his opportunity, he swept in to sink one from fifty feet while its attention was concentrated on the other two aircraft. The second submarine was sunk by another of the attackers, the third by the Royal Navy.

On the way home from this sortie, the Sunderland pilot spotted yet another surfaced submarine and though short of petrol went down to machine gun it against heavy defensive fire. The aircraft was hit and a small fire started, but this was quickly extinguished and the Sunderland made

base.

In September, 1942, the same captain's aircraft was attacked by six Ju. 88s, which badly damaged the Sunderland. Though every effort was made to keep her flying, the Sunderland had eventually to "ditch." Shortly afterwards the crew was rescued by a sloop which transferred them to the same destroyer which had, earlier in the year, picked up the survivors of the sub-

marine which the same crew had sunk. The pilot, Flight Lieutenant D. Marrows, was awarded the D.S.O. and the D.F.C. within a couple of weeks of each other.

In its million-odd operational miles, not the least exciting achievement was the landing of one of its damaged flying-boats on an ordinary airfield!

The most successful period of anti-submarine work of the Australian Coastal Command squadrons was undoubtedly that ten days in May, 1943, when, of five submarines sunk, one was claimed by this squadron, a second shared by two crews of No. 10 Squadron, and the third claimed by the R.A.A.F. Hampden Squadron.

This squadron, formed in June, 1941, can equal if not surpass the range of duties of any Australian squadron in this country. As a bomber unit, it carried out fifty-nine raids on twenty-five different targets, many of them among the most strongly defended in Europe at that time. Berlin, Bremen, Cologne, Hamburg, Kiel and Mannheim figure in a formidable list. Essen was attacked eight times before the Hampden squadron was converted, after many minelaying missions as well, to Torpedo bombers as a unit of Coastal Command.

As a T.B. squadron its principal function has been to attack armed and escorted merchantmen sneaking down the mist-shrouded coasts of Norway. This was often a task fraught with more than usual danger, for the attacking aircraft had to contend with ships sailing so close to the coast-line that the shore batteries added their contribution to the intense flak thrown up in defence. Not all of their targets have been ships however. There are in its total of nineteen enemy ships destroyed and damaged, two U-boat "probables" and one "kill."

Enemy aircraft are no strangers to the men of the Hampden squadron. On their first operational flight as a T.B. unit, several were attacked by Me. 109s. Four of the Hampdens were damaged but, although there were two casualties, all the aircraft returned.

In August, 1942, a detachment of the squadron left Great Britain for Northern Russia. On their arrival there, pilots of the squadron made several patrols of the incoming convoys to Murmansk and, at other times, plotted the far northice edge. Their chief job was, though, to hand over the aircraft to their Russian allies. So quick were the Red Air Force pilots that, by October, 1942, they were flying the Hampdens. The men of the squadron will remember many of the unusual experiences of that trip, not the least unusual that glimpse of the women pilots of the

Red Air Force; not the least interesting, the German raids.

"Though there were no air-raid sirens, the Russians, or the 'Ruskies,' as we called them were infallible," said one of the squadron. "When they ran, we ran—only considerably faster."

On his return from Russia, the commanding officer of the squadron, Wing Commander G. M. Lindeman, D.S.O., an Australian in the R.A.F. was awarded the D.F.C. for his leadership and because "the high morale of the squadron to the face of bad weather and enemy opposition was largely due to his fine example."

One of the most unusual experiences recorded by the squadron concerns a pilot who, in very bad visibility, attacked a merchant ship of 2.00 tons which was creeping along the Norwegian coast. The Hampden released its torpedo from about 500 feet, but not one member of the crew saw the result. Their aircraft was turned completely upside down—probably by the explosion in the ship which, it was later suggested, might have been carrying high explosive. To add to the crew's troubles the engine cut and and red tracer from four enemy fighters began to fly uncomfortably close. Sergeant S. A. Vincent, the pilot somehow righted the Hampden, eluded the fighters and got back to base.

The squadron made very good use of one of the longest days in 1943. The long hours of light gave the squadron its best opportunities and, on 19th June, it made three separate attacks. In the first one a crew attacked one of two ships and saw their torpedo score a hit although they had been forced to take violent evasive action against the concentrated fire of both ships and the shore batteries.

The second attack made near the Norwegian coast was made on a ship of 2,500 tons. Thirty seconds after the torpedo was released a brilliant flash completely enveloped the vessel, which must have been very badly damaged.

The third attack was made by two Hampdens on three medium-sized merchant ships. There again, the succeeding violent evasive action made it difficult to see the results but, as one of the crew who had last seen the torpedo running truly, remarked, "I wouldn't have changed places with them."

No more determined an attack was made than on August, 1943, when a lone Hampden engaged an enemy force of one destroyer, two flak ships and two merchantmen. This Hampden defiel the fierce and heavy fire of the five ships and succeeded in torpedoing a 4,000-ton vessel, which was later confirmed sunk.

In common with the other Australian

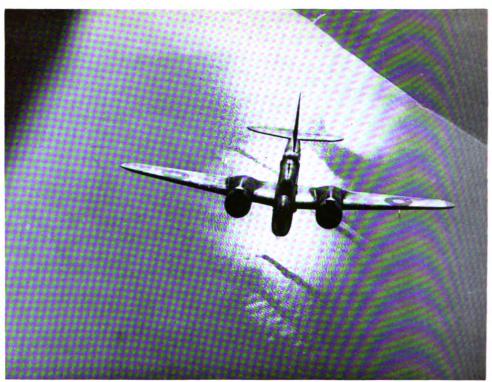


[Crown copyright reserved AUSTRALIAN-BUILT WIRRAWAY ADVANCED TRAINERS IN FORMATION.

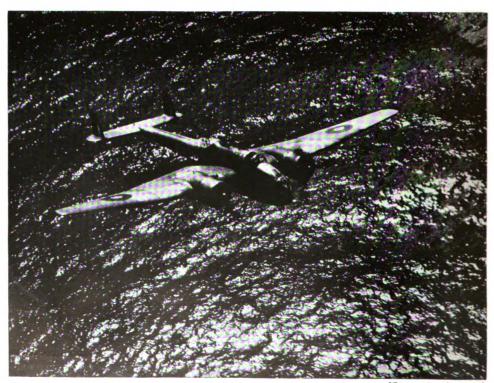


PICTURE SHOWS A ROPE BEING THROWN TO SURVIVORS OF A SUNDERLAND WHICH HAD BEEN HIT BY FLAK AND FORCED TO "DITCH." THEY CAN BE SEEN CLINGING TO A PORTION OF THE STARBOARD WING WHICH HAD BROKEN OFF WITH ITS FLOAT ATTACHED.

The survivors were rescued by a sloop of the Royal Navy where it chanced that a member of the same squadron (Aus. 2058 F./Lt. J. B. Jewell, D.F.C., of Adelaide) was spending his leave.



[Crown copyright reserved R.A.F. BALTIMORE OVER THE ADRIATIC OPPOSITE EIGHTH ARMY FRONT



A HAMPDEN LOW OVER THE WATER.

[Crown copyright reserved

Coastal Command squadrons, the Hampdens have made a number of air-sea rescue patrols. One of the most successful was that when ten men of the U.S.A.A.F. in two dinghies were rescued. The bomber crews had been shot down during their return from a raid the day previous.

Ir November, 1943, just as the squadron was app. aching its 1,200th sortic in 6,000 operational hours, the squadron converted to Beaufighters, and the new commanding officer became Squadron Leader J. N. Davenport, D.F.C., one the veterans of the squadron. Already the Beaughters have made their first attack on an entry convoy trying to beat the blockade.

These operations have brought the Australian squadrons their share of awards for gallantry. The total, now nearing sixty, includes two D.S.Os., thirty-eight D.F.Cs. and fifteen D.F.Ms. Altogether they have flown five million operational miles and 4,000 sorties in 38,000 hours.

That then is a picture of the diverse work of Australian Coastal Command squadrons, but their contribution represents, as it does in the other commands, only a fraction of the total Australian effort in the Command.

Through the years of the war, men of all trades and professions from every State of Australia have flown the many types of aircraft used by Coastal Command.

In 1942, Beaufighters escorted Beauforts in the daring daylight raid on the *Prinz Eugen*. Flying in the aircraft were several young airmen in dark blue. One Australian, talking of his experience in that raid, during which he shot down a protecting Messerschmitt, said: "We could see the German aircraft taking off from their land bases and I reckoned that, in all, some fifty aircraft attempted to intercept us."

Flight Lieutenant Bruce Rose had long experience with Coastal Command Beaufighters and, in 1941, took part in the historic Vaagso raid, being one of the members of a force briefed to protect the Commandos. Rose, known as Australia's "Bader" because he lost one leg when he baled out of a Wellington, was almost shot down during that raid but just managed to elude an attacker coming in on his tail. To his score he added one of the Heinkels escorted by the attacking Me. 109s. Early in the next year he figured in a very successful Coastal Command sortie against German aircraft when three were shot down without loss. The Australian share in that engagement was a Heinkel 115 float-plane destroved.

Perhaps, however, his best-known exploit was his persistence when escorting the attackers of the escaping *Gneisenau* and *Scharnhorst* in the English Channel. Rose, who was probably the

last airman to see the Scharnhorst on that historic occasion, flew a complete circle round the battleship which, all the time, was putting up, in company with the escorting destroyers, one of the fiercest barrages ever seen. One member of his squadron described him as a "demon for hard and dangerous work," and his description of Rose flying to within one hundred yards of the German warships certainly bore that out.

Later in that same year, 1942, Australian and British airmen were concerned in one of the most dramatic rescues of the war. A Wellington on patrol in the Bay of Biscay developed engine trouble. It was forced to "ditch" and the crew, in the one small dinghy, spent a miserable first night huddling together as protection against the bitter winds and constantly baling out the water which swept into the rubber boat. Spotted by Beaufighters and a Whitley at dawn the next morning, they were dropped rations and a dinghy. The rations were eagerly collected but the dinghy was allowed to drift.

Later on, an Australian Sunderland of Coastal Command, sent out to pick up the survivors, was wrecked in attempting to "land" in the very rough sea. The Wellington's crew looked on helplessly as the flying-boat broke up and the crew scrambled out. Then the Sunderland's dinghy burst and one of the crew volunteered to swim for the drifting dinghy 500 yards away. Arriving at it, the swimmer was so exhausted that he could only lie in the bottom of the dinghy after he had managed to drag himself into it.

When he was able to move there was no sign of either the Sunderland or the Wellington crews and, for four long days, the men in the two dinghies drifted within a mile or so of each other, without knowing it. Often they saw British and German aircraft. Once a Whitley, sent to look for them, was shot up by three Arado seaplanes. A shark added to the Wellington crew's anxieties and at least one of the men kept watch, ready to fire a pistol to scare it away lest its rough hide rub against the dinghy and puncture it.

On the fifth day, Beaufighters found both dinghies and signalled to the Wellington crew who, after five hours, managed to paddle across to the sole survivor of the Sunderland. His remark when they hailed him was, "I'm all for the open life. What about you?" The Wellington captain, Flight Lieutenant A. W. R. Triggs, M.B.E., D.F.C., recognizing the intonation, called back, "You wouldn't be an Australian, would you?"; to which Flying Officer J. H. F. Watson yelled back, "Yes."

Soon the two Australians were swopping notes and Watson was eating malted-milk tablets, biscuits and chocolate—part of the rations dropped

earlier. Next morning Hudsons and Beaufighters circled overhead and signalled "It won't be long now."

It was not. A few minutes later four naval launches were in sight. Even then Triggs' first thought was for the safety of the launches, and despite his trying experiences he insisted on manning a gun against the German aircraft he felt sure would come.

They did. So did a hopeful German launch. But the aircraft were successfully beaten off. Seven other Junkers, Focke-Wulfs and Arados were seen but the launch raced home without further attacks.

These incidents do not pretend to be the outstanding operational activities of R.A.A.F. men in the R.A.F. Coastal Command squadron. They are related simply because they are typical of so many others. But even so inadequate a sketch of these activities would not be complete without some mention of Australians flying Liberators.

The Liberators are popular with Australians; they are fast, well armed and take terrific punishment. One of the most successful U-boat hunters of this war was Flight Lieutenant A. W. Fraser, D.F.C. and bar, an Australian from the hottest State, Queensland, who has, ironically, done most of his work in the cold grey northern latitudes around Iceland. He was awarded a bar to his D.F.C. for sinking a fully surfaced U-boat and skilfully landing his badly damaged aircraft. The submarine was sighted as they were about to return to base. From 2,000 feet the Liberator went into a dive. From 600 yards the U-boat gunners opened fire. The powerful cannons of the Liberator answered back.

"One shell hit us on the starboard side," said Fraser. "It burst under the floor beneath the pilot's seat. We heard the bang above the general noise. The cockpit filled with smoke, and just then a second shell smashed the port wing tip."

Despite this and the heavy fire which the crew could actually see coming up, Fraser took the Liberator on down to release his depth charges from fifty feet. Both straddled the U-boat, which was almost obliterated by two tall fountains of water. The bow rose in the air and the submarine slid under the waves. On their third circle round the spot, they counted fifteen survivors.

Now began assessment of the damage. It was bad. The hydraulics were completely useless. They were losing petrol rapidly from the punctured starboard tank. The oil tank was punctured and the pipes beyond repair. Even when they arrived over base Fraser was faced with the alternatives of a crash-landing with wheels up or a brakeless landing—an unenviable choice in

the light of short and slippery runways and wing designed to offer little braking effect.

Most of the moveable gear was hurried to the rear of the aircraft. The majority of the crew went down towards the tail. Then Fraser made a long straight approach. With the inner engine cut, the outers left to steer by, and tail dragging on the ground, the Liberator at last came safely to rest. The crew grinned and put up their thumbs

Another Australian who has done fine work in an R.A.F. Coastal Command squadron is Flight Lieutenant C. W. Burcher, D.F.C., who was captain of a crew in a newly formed Liberator squadron, and was actually the first captain of this unit to go into action. In this and his succeeding operations his crew achieved a record which is probably still unsurpassed; that of one attack at least in every one of their first four operations, and a total of five in all. Then, in early May, 1943, it was announced that this same crew, with an Australian navigator and a New Zealand second pilot, had played a vital part in a convoy battle when eleven submarines were attacked.

Their part in that battle was a beautifully timed attack on a fully surfaced U-boat which was depth-charged from thirty feet. As they passed over the conning-tower an officer jumped into it almost head first. Other members hurriedly followed him. The second attack caused the submarine to go down so quickly that one at least of the crew must have been left behind and, in their reconnaissance later, what appeared to be a body was seen floating in the middle of an ever-increasing patch of oil.

Relating that experience, Burcher said: "I think it was good luck, but we're hoping it will last. We'd like to take our score to ten, not out." Before he completed his tour, Burcher had.

This is the more exciting part of Coastal Command work. There are many Australians whose stories would present for the most part a series of uneventful convoy and anti-submarine patrols, but just how important these patrols are—uneventful as they may appear—may be reckoned not in U-boat sightings but a lack of U-boat sighted. Their effect as a deterrent to effective U-boat attacks is always difficult to measure.

The value of no operation is harder to assess than that carried out by Leigh Light Wellingtons. Many Australians are engaged on work of this kind, and generally the reports of attacks end up with something like, "At the right moment the depth charges were released and the reargunner saw explosions close to the conningtower. The final result, because of our evasive action, was difficult to observe, as they must always be in these night engagements." But if

the final results are difficult to assess there is no doubt about the value of these attacks. Until recently, most U-boat crews must have felt comparatively safe from attack at night, when they had an opportunity of getting some fresh air and recharging the batteries.

Recently another move made our sea lanes even safer from the menace of the U-boat—the granting of bases in the Azores. Among the men who are patrolling the Atlantic from that pleasant island are a number of Australians. One of them described how much he liked the island and its inhabitants, who had put on a series of special receptions, including two bull-fights, for the visitors. In fact everyone, presumably, in that part of the world is happy about the new arrangement excepting the U-boat commanders, who must recognize that life is being made still more difficult for them—and for Germany.

#### (iv) SPECIALIZED OPERATIONS.

The major activities of Fighter, Bomber and Coastal Commands are part only of successful air warfare. To them must be added dozens of others equally important: photographic reconnaissance, air/sea rescue patrols, glider-pilot instruction, or the work of commands like Transport or Flying Training.

The R.A.A.F. has no squadrons in these groups or commands but serving with practically every one of them are hundreds of Australians whose participation is brought to light only when they figure in an out-of-the-ordinary incident or are mentioned in the latest lists of awards for gallantry.

One of the most experienced Australian photographic pilots is Warrant Officer K. G. Campbell, D.F.C., who has now completed over seventy operational sorties with an R.A.F. Photographic Reconnaissance Unit which was the first to sight the German battleship Bismarck in 1940 and which photographed the invasion ports of Europe in the early days of the war. Campbell was the fortunate pilot—"targets" are allocated to members of the P.R.U. in strict rotation—who was detailed to photograph Berlin after its first really big raid of the war in August, 1943.

Of that first trip to the German capital—he has now photographed Berlin six times—Campbell said: "Two hundred miles away from Berlin I saw what appeared to be a large cumulus cloud rising to a height of four miles. When I arrived I could see hardly anything of Berlin itself but for the fringe on the western side and a small part to the north. For twenty minutes I did runs along the edge of the smoke, taking

photos and, after I'd got all I could, I turned round and came home."

Told like that, it sounds so simple, so safe. The real truth is that work of this kind is both extremely complicated and dangerous. The citation to Campbell's decoration, which describes him as "an outstanding photographic pilot," goes on to say that he has made many successful long-range sorties including three consecutive flights to Berlin, to obtain damage assessment photos.

Another recently decorated Australian pilot was Flight Lieutenant J. H. Dixon who, with two R.A.F. pilots, went to Northern Russia on a special assignment: to photograph the *Tirpitz* in Alten Fiord.

From the Russian airfield these three men made eight to ten trips over the fiord and brought back information which enabled the Navy to plan their successful attack by midget submarine. Even then the job was not finished. Damage assessment photos had to be taken. Once again the Spitfires headed for the fiord on their dangerous mission. Despite the snow and ice of that October, they had completed their task by the middle of the month. Handing over their Spitfires to the Red Air Force, the three pilots returned by sea. All three of them were awarded Soviet decorations, the Australian's being the "Soviet Medal for Distinguished Battle Service."

Many photographic duties were undertaken in the early days of the war by pilots of Army Cooperation Command. Working in close liaison with the Army, the R.A.F. pilots did much of their work in Lysanders and Mustangs. One of several Australians who began this work in 1941, Flight Lieutenant D. W. Sampson remembers it for low-level reconnaissances and oblique photography, as well as the routine work of checking railway lines and communications. One of this Command's most important jobs was its part in the Dieppe raid. Commenting on that operation, Air Ministry said that "The success of the Dieppe raid was, in part, due to the detailed photographs taken beforehand by pilots of Army Co-operation Command." Some of the best photos were taken by an Australian pilot.

Army Co-operation Command has, of course, been absorbed in the Second Tactical Air Force but Sampson's old squadron continues to photograph the defences, the "military objectives," the railway yards and the airfields for the information of the Army, from whom requests are sent through a liaison officer to the R.A.F. group concerned. The three other Australians in the same squadron as Sampson all agree that everything possible is done to achieve perfect understanding between Army and Air Force.

The R.A.F. pilots and Army "types" often dine at each other's messes and the airmen spend whole days with the Army unit.

The Army and Air Force have also co-operated very closely in the use of gliders and the training

of glider-pilots.

One particular operation in which the Army, Navy and the Air Force co-operated was the paratroop raid on the Radio-Location Unit at Bruneval. The carrying force of R.A.F. bombers, was led by Wing Commander P. C. Pickard, D.S.O., D.F.C. (now missing), well known as the pilot in "Target for To-night."

"It was an absolutely grand experience," said Pilot Officer J. P. M. Haydon, an R.A.A.F. pilot from Canberra. "We picked up the paratroops and then our part was just to fly them to the point of landing. Their's was the hard job. The troops in my aircraft cheered as we took off, and they occasionally sang as we flew on our way."

"After we had dropped them we returned, but were too excited to sleep. As soon as we could we motored to a port where we had arranged to meet the troops on their return, in ships which had earlier covered their retreat. We were taken to the parent ship and had a grand reunion party when the paratroops came back from the operation, which had been a great success."

That was the Australian's side of the story, but the parachute troops supplied the other. "We had great admiration for the calm way in which the pilots crossed the Channel machine-gun posts, only a few hundred feet up. Hayden's aircraft was fired on by flak ships but, though it was hit once, none of us was injured."

The ground crews, like all ground crews, were as interested and excited as any one and, immediately the aircraft returned they began painting parachutes on the fuselage of the aircraft alongside the bombs denoting the number of operations completed.

Photographic reconnaissance, gliders, paratroop carriers—in all of these are found the dark blue of the R.A.A.F. Another specialized duty which many Australians have undertaken is that of air/sea rescue.

One of the first air-borne lifeboats dropped in this war was released by Flying Officer L. G. Wilson, of Victoria. Wing Commander N. A. N. Bray, D.F.C., and his crew had been forced to "ditch" in the Channel after a raid over France. Early next morning they were spotted by a Spit-fire but thought that their chances of rescue were small. They had floated so close to the French coast that they could see the houses.

On the other side of the Channel it had been decided that an attempt would be made, and the rescue aircraft flew to the south of England,

where it picked up its Spitfire escort. The seventy miles across the Channel were soon covered but an anxious twenty minutes were spent searching for the crew.

However, once they were sighted the boat was quickly released, floating down by parachute. The drop was perfectly executed and soon the survivors were scrambling out of their rubber dinghy into the boat. Rapidly it was cut away from the parachute, the compass was read, the small engine was started up and the boat made its way merrily to England. Another bomber crew had been saved.

An air/sea rescue of quite a different kind won Pilot Officer (now Squadron Leader) T. E. Hilton the D.F.C. When Hilton spotted a Whirlwind pilot who had been shot down into the sea.

he prepared to land beside him.

"Just before I did so," he said, "I saw rows of mines and, in the middle of them, in a dinghy, the fighter-pilot we had been sent to rescue. We had to make a cross-wind landing to avoid the mines. In doing this we overshot the pilot and had a narrow escape as I taxied across to him. We missed two mines with only four feet to spare on either side.

"A rope was soon thrown to the sergeant pilot, then we tried to pull him into the Walrus. In the excitement he didn't notice that the dinghy was still attached to him and, with this extra weight, we were pulled into the middle of the minefield again. Once more we had to manœuvre and just as we were gathering speed in the takeoff I saw a mine directly ahead. Somehow or other I managed to bump the Walrus over it. Five or six more bounces and we were airborne, heading for home," he concluded.

Another sea / air rescue that one Australian will never forget was that of an American pilot whose Thunderbolt had been hit by flak as he was escorting Fortresses over France. Before he reached the English coast the aircraft had caught fire and he was forced to bale out. He was sighted by a Walrus which landed in a rough sea and managed to drag his aboard, suffering from cold and sickness. Making him comfortable, the pilot found a smooth patch and began his run. Just as he was taking off the aircraft ran into choppy waves which tore off the port float. Flying Officer F. E. Wilson, an R.A.A.F. gunner, clambered out on to the starboard wing to prevent the aircraft turning over. The rear gunner followed and the two men stationed themselves on the lower mainplane, clinging to the bracing wires.

After two hours they were spotted by Spitfires which directed a high-speed launch to their rescue. Captain Praddy, the American, was put aboard and the Walrus was taken in tow.

The pilot then changed places with the rear gunner but Wilson stayed on with the wintry sea breaking over him as the aircraft ploughed through the waves. By the time they arrived at base Wilson, who had been out on the wing for four and a half hours, was so stiff that he could not straighten the arm which had been hooked round the strut. A cup of tea, some food and a bath and Wilson and Praddy began exchanging their experiences. The American had fought for a year in the defence of Darwin and New Guinea and knew many of the places with which Wilson was familiar.

It is rather ironic that the men who collect the meteorological information which decides whether conditions are suitable for operations or not should themselves fly in all weathers. Fog and blizzards may keep other aircraft earthbound, but the "flying barometers" go up every day. A small number of these select flyers is stationed at various units throughout the country, and two or three times a day their planes go out, flying at great height, to take records of the weather.

One R.A.A.F. pilot, Flying Officer Harry Parkinson, says he cannot remember a single day when the "Met" flight was not carried out at his squadron. He and two other Australians in his crew have flown in gales so heavy that, to use Parkinson's expression, "the wings were just

about flapping."

They have had to fight their way through rain, ice and electrical disturbances. Once when they were flying through a severe storm the aerial was blown off at the hilt and a ball of blue fire ran the whole length of the aircraft and disappeared out of the rear turret. The second wireless operator, in his turret, saw the flame go by and came out looking distinctly shaken. Sometimes they have had to ascend to altitudes where the danger is "bends"—a condition caused by nitrogen bubbles in the blood.

Another essential duty which lacks the glamour of operational sorties is that of instruction in Flying Training Command. Many Australians serve as instructors in this Command, whose job is to turn out efficient air-crews and instructors for the Command itself. One of the most telling graphs which Flying Training Command will show you is one depicting the rising numbers of hours flown and the falling accident rate.

Though it may appear strange that pilots from overseas should undertake training duties, it is only fair that some of the burden of this work should be shared by Empire air-crews when so many thousands of them have passed through Advanced Flying Units.

The testing of aircraft and aircraft armament is another job that comes under the general head-

ing of "unspectacular but necessary," though the life is far from dull sometimes and it cannot be called safe. One Australian who recently returned to Australia had flown over thirty types of aircraft in a series of tests and demonstrations of the armament powers of various aircraft. One of his duties was to demonstrate to General Eisenhower and other high-ranking American officers the capabilities of the Hyrricane as a tank-buster.

Closely allied to this work of training air-crews is that of conversion of air-crews from one type of aircraft to another. In 1942, two Australians, Squadron Leader G. D. Graham and Pilot Officer F. F. Fahey, A.F.M., were detailed to convert an R.A.F. squadron from Wellingtons to Lancasters. With them went nine ground staff and two aircraft. It was to be a rush job.

The succeeding weeks saw them working night and day. Training began at 1000 hours, tea and lunch were taken together at 1700 hours, when the aircraft were checked over for night flying. By 1900 hours they were out again and there they stayed out until 0200 hours next morning. That was their seven-days a week schedule.

In seven weeks they had completed the conversion of the whole squadron, a record made the more remarkable by the "nil" sheet for casualties and only slight damage to aircraft.

Personnel employed by Transport Command include representatives of all the Allied Nations and Dominions. It is not unusual to find a Czech pilot with an American navigator and an Australian wireless operator. Some of the pilots are civilians of all ages, while others are youngsters who come direct to the Command from the Empire Air Training Scheme.

One of the Empire Air Training Scheme pilots who made history was Pilot Officer G. V. Syer, who served in what was then known as Ferry Command. In July, 1941, this Command had taken over the organization known as Atfero, which controlled the Atlantic Ferry Service whose founders included Air Vice-Marshal D. C. T. Bennett, C.B.E., O.B.E., a Queenslander. Atfero's principal job was all-the-year-round ferrying of Canadian and American built aircraft across the Atlantic.

Since those days Ferry Command has become Transport Command, and now its work is far more extensive, its services reaching out to Gibaltar, West Africa, through the Middle East and Mediterranean area to India. The cargoes carried are anything from frogs and mice (required for medical research) to wireless valves. One Australian ferried urgent reinforcements of fighterpilots to Malta, others flew the ground crews of squadrons to new and advanced airfields.

Many Australians can tell stories of these long

and arduous trips. Sometimes they have been called upon at short notice to provide special aircraft for the V.I.P. (Very Important Personages). Air Chief Marshal Sir Arthur Tedder, Sir Harold Alexander and General de Gaulle were ferried to the historic Casablanca conference by a crew of Transport Command, which included three Australians. Flying Officer Frank McDonald, veteran of two tours, who captained the crew, was actually at the embarkation depot awaiting transport to Australia when he was called upon to undertake the flight. Flight Lieutenant E. A. Duplex, D.F.C., who was second pilot on that occasion, has since completed many trips as captain.

Some pilots of Transport Command can tell stories of determined attacks by enemy aircraft, but many more have experienced battles with storms and electrical disturbances which have overtaken them on their long flights. One crew, which included an Australian, can tell both tales. They were congratulated on their arrival at Gibraltar for an exceptionally determined fight against a superior number of enemy aircraft. Then in October, 1942, they were chosen to pioneer the West African route for Coastal Command Wellingtons.

After passing Casablanca on their first trip out, visibility deteriorated and by the time they were off Dakar they were flying in a thick haze and fighting against high winds. After unsuccessfully trying to pick up Bathurst they flew up and down the coast until it was almost dark. The petrol tanks were almost empty and it was decided to crash-land on the beach. In doing so, the Wellington ran into a sand dune and immediately burst into flames. Everyone managed to escape, but all of the crew, excepting one, were badly burned. They bandaged each other with strips of torn-up parachute.

Cold from shock, although it was a hot tropical night, the men huddled together, shivering. After a while they saw vague forms moving in the distance and the Australian and Englishman, using the few words of French and Arabic they had, coaxed a few scared natives to bring them some water. They returned with a calabash full of warm, earthy water and took the airmen along to their fishing hut, all the time warning them, by signs, of the danger of leopards and snakes.

None of them slept that night. The uninjured man kept the fire going. Burns kept the others awake. Next morning a Hudson aircraft roared overhead and a message was written in the sand — "Five badly burned." Back came the reply, signalled by Aldis lamp from the Hudson, "Stay by your plane." Thirty minutes later a Sunderland arrived and natives helped the airmen to

load up the flying-boat's dinghy with their kit Probably one of the West Africans is still wearing the blue silk pyjamas the Australian gave him

Flying conditions and hostile aircraft are not the only difficulties encountered. Flying Officer A. M. Lutz, of West Australia, the captain of his crew, talking about the ferrying of a Wellington back to England, said: "The fun "-the word is Lutz's own—" began when the elevator trimming apparently slipped and the Wimpie promptly shot up in the air and tried to do a loop. After that we moved all the luggage forward and got the tail-gunner out of his turnet and up to the nose. Despite all these difficulties things were still very difficult until I jammed my knee up against the stick to hold it, and my navigator (another Australian) got hold of the half-inch rope we use for climbing into the dinghy. This we tied round the top of the column and the boys, getting a good grip on it, managed to hold it down."

By that time all the crew were sitting up in the front turret. And so they came to England

Flight Lieutenant D. M. Hannah, of Melbourne, another Transport Command member was, for many months, the personal pilot of Lord Swinton, Resident Minister in West Africa, who travelled as the personal representative of the British War Cabinet so that many local matters once referred to England could be dealt with immediately without reference. In fulfilling those duties, Lord Swinton was flown by Hannah to many out-of-the-way places where he interviewed the native chiefs of great African tribes to persuade them to make the best use of the country's natural sources. The Australian pilot's log-book records with monotonous regularity such journeys as Accra to Leopoldville (2,000 miles), to Khartoum (2,250 miles), to Bathurst (1,650 miles).

One of his most interesting flights was a visit to Kotonu, Dahomey, to meet the French Governor, Boisson, just after the capitulation of French West Africa in favour of the Allies. His was the first Allied plane to receive permission to land. If that was his most interesting experience, the most amusing followed an extremely rough journey through a tropical storm of lightning and torrential rain which was so heavy that it could be heard beating down on the aircraft, above the noise of the engines.

"A guard of honour of several hundred troops, we knew, was waiting for us at the airfield but, because of the storm, we were late, and by the time the first salutes were over and the General arrived to inspect the troops it was completely black. It was certainly a case of darkest

Africa. However, something had to be done, so ne natives were inspected by electric light."

In 1943, the first non-stop flight from Great critain to West Africa was made by a Liberator f Transport Command which left just after teand arrived for breakfast next morning. The time or that journey of 3,150 miles was 15 hours 8 minutes and, as a contemporary clipping said f the journey, "credit for the Liberator's arrival

on schedule must be, in great part, due to the fine work of the navigator, an Australian."

These then are a few of the hundreds of unusual and dangerous operations in which the thousands of R.A.A.F. men, who have come to the Mother Country since the outbreak of war, have participated. To them must be added many equally important but often routine and monotonous activities of an air force waging war.

## The Air Staff

By Group Captain W. E. Wynn

THE Royal Air Force came into being, and survived, in spite of widely held views that a separate air service was revolutionary, highly dangerous and undesirable in every way. Although the present war has shown the R.A.F. to have been nevertheless worth while, less obvious is how certain of its parts have helped to bring us where we are to-day.

One of these is the Air Staff. The Air Staff is composed of officers who are experienced airmen as well as students of war. Trained to approach defence problems as airmen, they add their views to those of their opposite numbers in the Army and Navy. This sounds simple enough in theory. In practice obstacles are sometimes in the way.

The Air Staff has not only had to tackle problems peculiar to the air. It has been up against the everlasting prejudice against all novelties, especially novelties that have to do with war. There are always with us those who would put back the clock, or at least bring it to a stop.

Even when the present war had got well into its stride there were some who still believed that the Army and Navy had the exclusive right to star parts in the drama of war; that others were only fit to be extras and bit-players, and that happenings in the air could never be more than incidental business in the unfolding of the play. They could thus only measure the value of aircraft against the more obvious of military and naval needs.

The usefulness of the air weapon rests upon a broader basis. Among the many duties that have fallen to the Air Staff is that of stressing how air power can help to achieve the ultimate war aim.

War is an art and, like all arts, whatever changes may occur in method, it is bound by certain basic principles. Nor is war an end in itself. It is a means to an end, the ultimate aim

of all wars being a change in the enemy's mind. Fighting forces seek to bring about this change by causing such inconvenience, discomfort, suffering and fear of worse to come that the enemy decides the game to be no longer worth the candle.

Each fighting service has its own way of doing things.

An army can seize and hold not only places but, in the last resort, persons, and thus clearly demonstrate the futility of further resistance. It can, however, only do this after effective opposition has been swept away. This generally means land battles, and land battles mean, among other things, drawing lavishly upon man-power and industry.

A navy can affect the enemy's mind through the medium of blockade, only possible if it has some measure of control over sea movement. Blockade causes suffering and so influences mind according to the importance of sea-movement to a country's economy. In our case it is vital, and its control has, in the past, been won and retained by our naval supremacy. A supremacy enjoyed when opposing navies have been too weak to be a menace, have preferred the security of their own harbours or been decisively beaten in battle. Although the wide expanses of the sea have always given the raider and blockade-runner a sporting chance, naval supremacy has always resulted in more or less absolute control over sea movement. In other words, it has given us command of the sea.

This is no longer so to-day.

Locally superior air forces may make sea power subject to air power, and deny naval supremacy that control of sea movement once enjoyed by the surface ships of the paramount naval power.

In drawing attention to this rather unwelcome truth the Air Staff never claimed that naval

supremacy was now unnecessary. It merely maintained that a combination of sea power and air power might sometimes be needed to establish and preserve command of the sea.

It nevertheless needed Malaya, the Mediterranean—both before and since our conquest of North Africa—and recent events in the Pacific to prove that the Air Staff was not far wrong.

A thing to note about an army is that it is a single-purpose instrument. It can only affect mind after successes in the field. This may involve a long and tedious process.

A navy is a dual-purpose weapon. So long as it is relatively strong it can combine a measure of control over sea movement with establishing its own supremacy. It should be remembered that with a Continental Power the effect of blockade upon the ultimate war aim is likely to be slow.

With fairly evenly matched forces, air supremacy is both more elusive and less absolute, less an immediate necessity and less susceptible of decision by a single battle than land or sea supremacy. Aircraft can in consequence combine the gradual build-up of their own ascendancy with a wide and varied range of missions, either directly against the ultimate war aim or against objectives of immediate and momentary importance.

Our bombing attacks are an example of how aircraft can simultaneously serve as means to three separate ends. First, to establish superiority in air fighting; secondly, by attacks against factories and communications to curtail output and so weaken the enemy's material strength on land, on sea and in the air. We know that air attacks on ships, harbours and communications, often many miles from where the opposing armies were at grips, greatly helped our forces in North Africa. The third of the three ends is to destroy amenities and inflict upon the enemy people fear and discomfort, which, even when effects are not immediately apparent, must inevitably dispose them to a change of mind about the issue.

Another point. Our enemies became aggressors partly because they had the idea that war was a profitable pastime, and partly because they were confident that, whatever might happen elsewhere, their own homeland would not suffer. Proof of the falsity of these beliefs may make them less keen on aggressive war.

The Air Staff conception of air power was to some extent inspired by history.

In war it is wise to lead from strength, to exploit such resources as are naturally available rather than try to fit national patterns into strange moulds.

We have all heard of the bowmen of England,

and how useful in war was the Englishman's liking for, and skill at, marksmanship. We beat the Spanish Armada by skilful use of our available ships and the qualities of their crews.

Napoleon used deep infantry columns, to inspire his troops with a sense of firmness based on great numerical strength. The size of the British armies that opposed him forced them to fight in line, which demanded great steadiness and a very high order of discipline on the part of the troops. This also was found to expose the flanks of the French columns to converging fire, which led to their undoing. In this way apparent weakness became strength.

In applying to our own time the principle of developing available resources the Air Staff were aware of certain facts. First, that with our relatively small population, our great responsibilities and our needs at sea, questions of manpower would limit the size of our land forces. Secondly, that our industries, engineering skill and scientific progress were well suited to develop air power. Thirdly, that flying made as powerful an appeal to the peculiar genius of our race as did sea-faring in Elizabethan times.

It was, however, not enough for the Air Staff to have ideas. They had to persuade others. This sometimes was an uphill job. Few door-to-door pedlars of vacuum cleaners meet the sales resistance that the Air Staff had to face in the days before the war.

Nor did success in putting its ideas across mean that it had done its job. Having thought out how to use the R.A.F., the next step was to make the instrument, composed partly of man and partly of machine. The Air Staff accordingly became the link between those who flew, and would be called upon to fight, and those we know to-day as back-room boys.

In modern war change swiftly follows change: what succeeded yesterday may be useless for to-morrow. Tactics, armament, radio, sighting devices, the protection and comfort of crews, flying aids, navigational aids, rescue measures and countless other items may each be a vital factor, and in the air only the best is good enough. It was for the Air Staff to select the best, guided by specialists, by the aggregate of individual experience throughout the service, by what was known of the enemy, and by a reasoned balancing of possibilities.

An example of long-range planning is provided by the heavy bombers doing such effective work to-day. The development of such a force was not a matter of weeks or months. It took years. First of all the Air Staff had to take into consideration such factors as our geographical situation, what targets to attack, weather, hos-



S./LDR. D. G. ANDREWS, D.F.C., OF SOUTHPORT, QUEENSLAND, COMMANDING OFFICER OF A ROYAL AUSTRALIAN AIR FORCE SPITFIRE SQUADRON IN THE U.K., WITH THE SQUADRON DOG "SPROG."



[Crown copyright reserved FITTERS AND OTHER MECHANICAL SPECIALISTS OF AN ALL AUSTRALIAN SQUADRON WHO FORMED THE ADVANCED PARTY MOVING INTO ITALY AWAIT TRANSPORT TO TAKE THEM FROM THE AERODROME IN SICILY TO ITALY.



[Crown copyright reserved MAINTENANCE CREWS AT A ROYAL AUSTRALIAN AIR FORCE SPITFIRE SQUADRON IN THE U.K. AT WORK ON THEIR AIRCRAFT.



[Crown copyright reserved VENTURA AIRCRAFT OF THE ROYAL AUSTRALIAN AIR FORCE.

tile opposition, economy of man-power in crews. manufacture and maintenance, the range, performance, load-carrying capacity and defensive

power of aircraft.

With such matters decided, the personnel and manning staff had to be warned of likely requirements in aircrews and others; the training staff given some idea of the numbers they would be called upon to train, in respective categories and trades. Airfields had to be selected and prepared, and hospitals provided for. The equipment staff had to be warned about the supply, storage and distribution of spares and countless other needs; signals, armament and other specialists shown their part in developing the force.

Similar processes had to be gone through in giving effect to the doctrine that high performance interception fighters, with tremendous firepower and generously aided from the ground, are the sole effective defence against air attack. The doctrine responsible for our success in the Battle of Britain, Malta and elsewhere.

The Air Staff never saw the R.A.F. as destined to usurp the functions of land and sea forces. All they claimed was that modern war demands the harmonious use of all available means to the desired end. Parallel with schemes for enabling the R.A.F. to help beat the enemy in its own direct and special way, the Air Staff studied how aircraft could best be used in giving help to the Army and Navy.

As part of the involved machine that is the R.A.F., the Air Staff has thus had no mean share in saving the world from the barbarian.

## An A.C. Squadron in Libya

**WINTER, 1941-42** 

By Wing Commander J. W. Stewart, D.F.C., R.A.F.V.R.

The troubles of our proud and angry dust Are from eternity, and shall not fail. Bear them we can, and if we can we must. Shoulder the sky, my lad, and drink your ale.

-A. E. HOUSMAN.

T was lovely to be back with the squadron. I had been shot down in Greece the previous April and for four and a half months had been in various hospitals as far apart as Athens and Durban. Towards the end of my absence, when I was fully restored to health, I had felt miserable, scrimshanking in South Africa when I knew my friends were operating against the Vichy French in Syria. However, now I was back and I was again on the squadron strength. The Syrian campaign had been successfully finished and Squadron Headquarters were at Ramleh, where we were supposed to be resting and refitting.

They were halcyon days. In the mornings we were busy flying. We were at last losing our Lysanders and were being re-equipped with Hurricanes, so there was much to be learnt and practised. After lunch there was no work; Paul and I usually went into Jaffa and spent the after-

noon bathing.

The September days grew imperceptibly shorter, the sea grew perceptibly less warm, and word came that we were off. We were to go to the

Western Desert, back to the scenes of the squadron's operational début in 1940. Permission was hastily procured for the air-party to stay one night at Heliopolis and a squadron dinner was held in Cairo. Next day we were settled at Gerawla—a few miles from our first operational landing-ground during Wavell's campaign. The first realization that struck Paul and me was our advancement in the squadron. A few months earlier he and I had both been the bog-rats. Now to our surprise we found that many veterans had left and there were new faces in the Mess; we were almost in the running for a flight.

It was October and no large-scale land fighting had taken place since June. The Germans were in Halfaya; a British garrison was beleaguered in Tobruk. South of Halfaya, as far as Fort Maddalena, was a no-man's land patrolled by armoured cars of both sides, while the main forces were in positions fifty to sixty miles apart. At first our work consisted of more training, practising photography and trying to gain confidence in our R/T. Then the flight Paul and I were in was sent forward to take over operations from an Australian squadron, which had been the only A.C. squadron in the desert since the summer. It was not a busy time operationally; a few photographic sorties were undertaken and an occasional tac/R. Babe Edwards, our senior A.L.O., used to take a pilot with him each evening to 13 Corps H.Q., where we were informed of all developments in the land war. The B.G.S.

—Brigadier Harding—would make a point of meeting each pilot, and later he might send his personal congratulations on any job well done. This was a characteristic which made him most popular with us, and gave us belief in the importance of our work.

Then, in November, we learnt the outline of operation "Crusader." General Cunningham's plan has been written about extensively and I do not intend here to describe in detail how he aimed to destroy the Axis armour after splitting Rommel's forces by an outflanking movement and a simultaneous thrust from Tobruk.

Our role was to be the eyes of 30th Corps. 30th Corps consisted of the 7th Armoured Division and the 1st Armoured Division—the latter having arrived from England in the summer. An armoured corps in those days suggested irresistible striking power and 30th Corps' task was therefore to drive into Libya south of the defended positions, then to swing north and meet the garrison from Tobruk. We were glad to move south, deeper into the desert, so that we could participate in the triumph which we felt would be assured.

All the squadron was together, now at L.G. 112, when Lewis Burnand, the C.O., called for me and said he had decided that we would operate from an advanced landing-ground. The situation might not warrant a whole flight being detached at first, so he intended only to send a skeleton party to live at the A.L.G., and other pilots would then fly up to operate as required. He wanted me to go out with the Sappers and choose a suitable piece of desert on the Corps line of advance for use as a landing-ground. I was then to be in command of the advance party.

During the two days spent on reconnoitring for a landing-ground I was taught more about the desert than I subsequently learnt in a year. This was entirely due to the R.E. major who was responsible for constructing A.L.Gs. I met him at H.Q. 7th Armoured Division and together we drove west and reached R.H.Q. 11th Hussars at sundown. Next day we started at first light and reached Fort Maddalena. All the time the R.E. major was teaching me how to navigate in the desert, the taking of back-bearings, the use of a sun compass and, above all, the meanings of a few Arabic place-names which occur on the map and by which apparently featureless positions can be identified. When we were a few miles inside Libya we saw the fresh tracks of two German armoured cars, and once we saw a single German aircraft. We stopped immediately

in case it should show an interest in the dust our movement created, but the pilot evidently had not seen us and he held his course. By mudday we had reached the area in which Corps was going to establish its headquarters, and we found a stretch of ground which, with little labour could provide two runways of 1,000 yards each. We took bearings on the exiguous features which the vicinity provided so that we would be able to recognize the place when we returned. Then we set course back to Maddalena. A few miles short of the frontier we stopped dead at the sight of three armoured cars on the horizon, but after a brief suspense were relieved to recognize them as a troop of the 11th Hussars.

On returning to L.G. 112 we found a feverish atmosphere of preparation. "D" day was to be 18th November. There was barely sufficient time to organize the advance party and drive with it to the rendezvous on the night of "D-1." Then on the morning of 18th November, we started a: first light, the column widely dispersed, and crossed the frontier south of Maddalena. There was no sign of any enemy, on the ground or in the air, but it was strange to see the mynad tracks made by our advance in the virgin desert By the afternoon we reached the Corps area and hastily started marking the landing-ground. For "D" day, all tac/Rs. were being carried out from L.G. 112, but it was imperative that the new landing-ground should be available for D+1, as reconnaissance might be needed beyond the range of a Hurricane operating from L.G. 112.

We were ready at dawn to receive the first aircraft and two Hurricanes soon appeared in the distance. They could not spot the landingground, however, and no Very cartridges that we fired succeeded in attracting their attention Babe Edwards returned from Corps H.Q. where he had tried to find out news of our attack but he brought with him a very sketchy picture. A reconnaissance was wanted of the triangle. Bir el Gubi, El Adem, Sidi Rezegh. At last two more Hurricanes appeared, and these responded to our Very lights immediately and landed. I was already briefed—as far as the little information Babe supplied could constitute briefing—so as soon as an aircraft had had its tanks topped up I took off.

Aerial navigation is difficult deep in the desert. To find a small feature such as Bir el Gubi from L.G. 134—as our new A.L.G. was called—we had to rely on the compass and a watch. To try to make use of tracks was usually pointless because though the map showed a wealth of tracks these were often non-existent, whereas many new ones had been made by our advance

and the enemy. It was at the same time necestry to weave vigorously as we knew that the termans had been re-equipped with 109 Fs. and appected them to try to jump us. In these circumances we were unable to devote as close attention to the ground as reconnaissance ideally emands. All we could hope to report was the stimated size of any force we saw together with as pinpoint. It was impossible to identify types of armour from 4,000 feet, though the presence of A.F.Vs. in a concentration was often revealed ty tank tracks.

So began for us an intensive period of operations in many ways unsatisfactory. We never had ufficient information about our own troops for dequate briefing, nor did we know what use was made of our reports. Because of this dearth if intelligence, our A.L.Os. were usually unable to tell us the significance of the various columns and concentrations which we reported.

Again, L.G. 134 was even, after a few days, lifficult to find from the air. This meant that after completing a task the pilot would have to day east until he came to the wire, occasionally anding to refuel at one of the fighter landing-grounds at Fort Maddalena before turning west again to set course for L.G. 134.

We were asked to broadcast the results of our missions before landing. This necessitated closing the hood, as otherwise noise from the engine swamped speech and made reception on the ground difficult. Naturally, we disliked flying with the hood closed and reading off the messages we had jotted down, as it was impossible to keep a good look-out at the same time. However, we made every attempt to do so.

Apart from these handicaps it was a most happy time. A few days after "D" day, Lewis Burnand decided a whole flight could operate from L.G. 134 and I found myself posted to command it, the previous flight commander having left the squadron through illness. Consequently I was very busy; I had a hundred men and eight Hurricanes to look after as well as the operational side of the show. One of the chief administrative problems was water. For several days the ration was only one pint per head; after the requirements of cooking had been satisfied this left us thirsty and unwashed. I went over to Rear Corps H.Q. and found there an old friend in the person of the Staff Captain "Q." Next day we drew forty gallons of water, ostensibly for our photographic trailer.

We had good fortune in avoiding casualties during this phase. There were many encounters with enemy fighters but in most cases we saw them first and avoided being engaged. Paul's duel with two 109s. was an exception, however.

He had just finished a reconnaissance of El Adem—a landing-ground which the Germans were still using-when he saw two unidentified fighters flying high up behind him. He was on his way home and put the nose down, but despite the extra speed the fighters overhauled him and he recognized them as 109s. He was flying low when the first one manœuvred into position for an astern attack. Paul simultaneously did a steep turn and saw the bullets fly past. Each 109 attacked alternately and each time Paul's steep turn saved him from being hit. The chase went on for thirty minutes, gradually moving farther south-east and taking the 109s. farther from their base. Then one of them ceased attacking, its ammunition evidently exhausted. The remaining fighter made two more attacks and then they both flew away. The only bullets in Paul's Hurricane were a few which had hit when once he had tried yawing as an evasive action instead of a complete steep turn. However, he had been flying for thirty-five minutes with the boost control cut-out extracted and the engine seized when he was just inside our lines near Bir el Gubi. Here he was able to give the results of his reconnaissance to an army unit which passed his report back to Corps H.Q. The skill and coolness needed to carry out effective evasive tactics at ground-level were recognized by A.H.Q., and this exploit, on top of Paul's achievements in Greece, Iraq and Syria, earned him the D.F.C.

At last, after several alarms and one retreat, and a change of Army commanders, the junction with our forces in Tobruk was cemented. The losses at Sidi Rezegh and Ed Duda had not been in vain, and suddenly all the Axis vehicles we saw were driving west. My flight was then rested and the other flight went forward to Bir el Gubi. They had not been there long when we heard that our armoured forces, through lack of petrol at a vital moment, had failed to trap the Afrika Korps at Gazala and that Rommel was now heading west at great speed. Corps H.Q. was moving to Acroma, and its subsequent moves would probably be very long, because Rommel clearly had no intention of fighting in the Jebel Akdar and our Army would try to get to Agedabya before he could reach harbour in the Agheila marshes. Squadron H.Q. and my flight followed behind the advanced flight, first to Bir el Gubi, then to Acroma, and then straight on to Tmimi.

We spent Christmas at Tmimi. It was bitterly cold. A flock of starlings came and roosted in the wadi where we were camped and aggravated the nostalgia we all felt. Our dinner was improved by libations of punch which the Doctor had made from issue rum, and lemons left behind

by the Germans. Just as we were feeling in goodish form a Ju. 88 joined the party and dropped a stick of bombs neatly across the wadi. No one was hurt. We had scarcely recovered from this intrusion when Lewis received a signal from the A.L.G. saying that Hosley, the flight commander, was missing from a tac/R. Next day Paul left to take over command of the advanced flight.

Early in the New Year, Lewis and I flew up to the A.L.G. at Msus and arranged to change over flights. Lewis, Babe and I drove to H.Q. 13th Corps, with whom we were once more working. Here there was an entirely different atmosphere from that at 30th Corps. Brigadier Harding was still the B.G.S. and the G.3 Air was Bernard Bruce, whom I had known at Oxford. The B.G.S. himself explained to us the military situation and said that he expected a move farther west shortly.

The next day my flight moved forward to Msus. Paul's flight had had a tough fortnight. The Axis were making a stand at Agedabya and the 109s were being used cleverly from improvized landing-grounds to intercept our reconnaissances.

Our fighter squadrons were also operating from Msus—a different story to the L.G. 134 phase, where we had been forty-five miles in front of them. This enabled us sometimes to arrange for the tac/R pilot to go out with a fighter sweep, but the fighters were forbidden to give direct escort to the tac/R. Hence we would sometimes find ourselves near the fighters without being part of their formation—a dangerous situation, as the 109s were constantly on the alert for stragglers.

Rommel was still holding Agedabya, and the landing-grounds there were being used by Stukas. These landing-grounds were thought to be just within the range of medium artillery, so we were asked to carry out air shoots. For this purpose photographs were required. I had been briefed to take them, and was sitting in the cockpit running-up the engine when word came that the enemy had evacuated Agedabya and withdrawn to Agheila. We immediately packed up and the ground party moved west to Antelat. The air party left shortly afterwards and I took off to do a tac/R of the Wadi Faregh area. On its completion I landed at Antelat, where by that time Corps H.Q. was established.

At Antelat we were again on our own and for a few days I was the senior R.A.F. officer for fifty miles. Then the fighter squadrons began to arrive and Wing Commander Charles came to 13th Corps H.Q. to act as R.A.F. liaison officer. Wing Commander Charles asked me to lunch

with him one day in "A" Mess, when the Corps Commander, General Godwin Austen, said some complimentary things about the work of my flight. After lunch, Wing Commander Charles asked if he could borrow one of our Hurricans to carry out an R/T test with a Honey tank. The weather was foul and we had no operations that afternoon, so we all gathered in the mess tent to listen in on the flight wireless set to the R/T test It had just begun when we heard Charles say he was being engaged by Messerschmitts. We ran outside the tent in time to see a Hurricane flying straight and level while two 109s were making repeated quarter-attacks on it. All available A.A. opened up on the 109s but they climbed like rockets into the clouds while the burning Humcane crashed in flames on the edge of the landingground. It was a shocking occurrence: we all felt that if Wing Commander Charles had taken the slightest evasive action he would probably have been all right, because the 109s were not going to wait for long so close to one of our fighter landing-grounds.

The following day I flew back to Squadron headquarters at Tmimi to tell Lewis about the accident. On my return to Antelat I found that John Fortune had disappeared on a tac/R of the Wadi Faregh area. Lewis came up the next day he had been ordered to take Wing Commander Charles's place at Corps Headquarters while retaining command of the squadron.

The weather all this time was unspeakable. It was constantly raining and the landing-ground was fast becoming unserviceable. Operations were cut down to the minimum and we took the opportunity to send an officer to Benghazi to try to buy some eggs, vegetables, Chianti and whatever else could be obtained. Meanwhile. Bernard Bruce took Lewis and me over to Saunnu to lunch with the headquarters of the 2nd Armoured Brigade. It was an interesting lunch; everyone in Brigade H.Q. seemed to be supremely confident in their tanks and their training, but the Brigadier spoke of the impossibility of getting sufficient petrol to move more than one squadron thirty miles at a time. However, the war seemed to be going well. The German garrison at Halfaya had just capitulated and the Brigadier said that in his opinion Rommel was between the devil and the deep blue sea.

The very next day our one and only "P.O. Prune" returned breathless from a tac/R to report 5,000 vehicles concentrated south-east of Agheila. Photographs were asked for and further tac/Rs. were sent out, and Prune was shown to be right; the Afrika Korps was evidently preparing a come-back. However, the opinion we received from Corps H.Q. was that our forces

therefore came as a shock when the following ternoon we were told to pack up immediately deleave for Msus. The fighter squadrons had left in the morning and it appeared that a hall motorized German column had penetrated or defences north of Marsa Brega and were evancing in the hope of capturing the bulk of the Western Desert fighter force at Antelat. The eather had mercifully cleared, as if the rain had existed for a further two days—or if Rommel and attacked two days earlier—we would have a do to leave a considerable number of aircraft togged on the ground.

Two new pilots went out on "recces" as we

Two new pilots went out on "recces" as we ft Antelat, and I arranged for them to land ack at Msus. Just after we left, the landing-cound came under shell-fire. Brigadier Harding and Bernard Bruce were the last to get away om Corps H.Q. and they both narrowly escaped

pture.

At Msus we settled down to a squalid night. e always carried our bedding in our aircraft hen we moved, so at least we could try to eep. In the middle of the night the ground party rrived. In the morning I did a reconnaissance the south and saw Germans advancing where few days earlier had been the 2nd Armoured rigade's leaguer. From a second tac/R, Tony tevens failed to return. In the afternoon I went ith Don Robertson, our New Zealand gunner L.O., to Corps H.Q., now sited east of Msus. here was a nose-to-tail stream of vehicles movng east along the track, and as we set out Stukas ried to bomb the column but were put to flight y a few of our fighters. Near Corps H.Q. was a arge white clay-pan: it was always advisable or us to be as near to Corps as possible so I ecided, with Brigadier Harding's approval, to nove my flight next day to operate from the lay-pan.

This was a most fortunate decision. All the ghter squadrons had withdrawn to Mechili and ext morning we heard artillery fire alarmingly lose to Msus. However, the flight convoy was eady packed and we reached the clay-pan early 1 the morning. Arriving there we found Lewis Burnand coming from Corps H.Q. to meet us. le said that the situation had become worse nd Brigadier Harding had decided that we vould have to "up sticks" once again. The Gernans had apparently reached Benghazi, so we vould clearly have to retreat at least as far as the jazala line, as there is no tenable position for modern army in the bulge of Cyrenaica between Gazala and Agedabya. We therefore arranged or my flight to move straight back to the squadon base at Tmimi. Meanwhile, two tac/Rs. were

wanted immediately: one south to Saunnu and the other south-west to Antelat. Brian Attwood and I took off each to do one of them and we arranged to land back at Tmimi and signal our information from there to Corps. Taking off from the clay-pan—"L.G. 4711" as we unofficially named it—I nearly had an accident by stupidly selecting undercarriage up before I had sufficient airspeed. The aircraft sank, but fortunately I was able to pull it off the ground without the airscrew touching.

My tac/R was uneventful but Brian saw a formation of German tanks refuelling at Msus—on the landing-ground where we had been a couple of hours before. He broadcast the fact repeatedly on his way back to Tmimi, but there was no one to receive his message and pass it to the bombers.

It was pleasant to be back at Tmimi, despite the unpleasant reason for having to go back there; life was less uncomfortable than at Msus. One memorable incident took place at this time. A photographic reconnaissance was asked for by Army H.Q. of the track west of Msus. We had a long-range photographic Hurricane and I detailed Jack Moss for the job. He had started taking his photographs at 20,000 feet when he saw four 109s climbing up below him. Instead of turning for home at once as would have been justifiable and prudent, he deliberately carried on and took all the photos. As he finished, the 109s were coming in to attack. He half-rolled away and dived down to 10,000 feet. During the dive the windscreen became covered in frost and Jack could see nothing; the first indication that he was not alone came when he saw tracer flashing by. He again half-rolled and dived into a cloud of sand which was being blown across the desert. Then began a chase, Jack keeping in the sandstorm which rose in places to several hundred feet, and weaving violently. A Hurricane fitted with three cameras is much less manœuvrable than the normal Hurricane, and any Hurricane I is much slower than the 109 F. However, the sandstorm was rising and in its shelter Jack managed to reach Mechili, being pursued and attacked for forty miles. At Mechili the sandstorm was thick and completely obscured the landing-ground. Jack crash-landed on a comparatively clear stretch of desert, took his films out of the cameras and, with them under his arm, walked into the nearest headquarters. We were all delighted when a few weeks later we learnt that this feat had won for Jack the D.F.C.

Meanwhile Paul's flight had taken over operations and were using Mechili as an A.L.G. However, they were only at Mechili for a day or two. Corps H.Q. was withdrawing to Acroma

and thus we at Tmimi saw the odd spectacle of our detached flight retreating behind squadron H.Q. to operate. The next day Squadron H.Q. also moved back.

The establishment of 13th Corps near Acroma signified the consolidation of our position on the Gazala line. The Afrika Korps was not strong enough to attempt a further offensive and there was a wide, thinly patrolled no-man's land between the two forces. Lewis moved squadron headquarters to Sidi Azeiz, whither my flight went to rest. Several of us were able to have forty-eight hours' leave in the Delta as A.H.Q. Western Desert put at the disposal of pilots a captured Ju. 52, called the "Libyan Clipper." Robert Macgregor and I travelled together on this and spent two days in Cairo having baths, eating sticky cakes and enjoying riotous nights.

On returning from leave we found Paul's flight having a difficult time at Acroma. Most of our fighter squadrons were re-fitting after over two month's intensive operations and the Luftwaffe was taking the opportunity to interfere as much as possible with our " recces." My flight went forward to Acroma to take over operations and we were forced to resort to carrying out all our tac/Rs at the lowest possible level. This was most unsatisfactory as navigation, except along certain well-defined tracks, is impossible in the desert at nought feet and, secondly, the pilot has a very narrow vision from low-down and is apt to miss anything which he does not actually fly over. However, we considered that the enemy was unable to pick up a low-flying aircraft on his RDF, so by doing "recces" at nought feet we hoped to achieve surprise and avoid being jumped. Against this was the increased vulnerability of a low-flying Hurricane to light A.A. and machine-guns.

We sustained considerable damage from small arms fire. Our own troops were light on the trigger as, for a change, they were seeing more of the Luftwaffe than of our own aircraft. Through this cause we suffered one tragedy. On the afternoon of the first day of the detachment, Brian Attwood took off for a tac/R. The time for his return had passed when Bernard Bruce rang up to say that a Hurricane had been shot down by our own troops, seven miles away. Apparently Brian had been flying out straight and level towards his reconnaissance area at about 200 feet when suddenly light A.A. and rifles had fired at him and killed him. Fire had been opened deliberately, the unit concerned realizing the aircraft was a Hurricane. They apologized, but explained that they had frequently seen a single Hurricane flying low and were convinced that it was being used by the enemy, as on several occasions after its appearance they had been attacked by Stukas.

General Ritchie issued an order saying that no aircraft was to be fired at unless it had been recognized as hostile or had committed a hostile act. However, Brian was dead. The lesson his death taught was one we always strove to apply—never to miss an opportunity of explaining to the army our task and our methods of operating.

Shortly after this tragedy we were forced to withdraw from our A.L.G. to El Adem. 10% were in the habit of patrolling over Acroma and attacking any Hurricane that took off. Robert Macgregor put up a splendid show: he was attacked on his way out to a tac/R but succeeded in shaking off the 109s, only to find two more waiting for him as he came back. He crashlanded on the edge of the landing-ground, having completed his task. What finally made Acroma untenable was an early morning ground-straffing raid by a dozen Macchis, with 109 to cover. Their shooting was not as good as it should have been, but they succeeded in rendering temporarily unserviceable six of our Hurricanes.

From El Adem we continued operating at lowlevel: I considered the danger from 109s greath to exceed that from A.A. Corps was most sympathetic to our difficulties and realized we could not carry out normal tac/Rs from 4,000 feet We were asked whenever possible to do phow "recces" as a supplement to our low-level sorties. More often than not, however, during this period, the weather was unsuitable for photography. It rained harder and more often than seemed possible in a desert, with the result that all our dug-outs were flooded and we had to move into the devastated Italian buildings near the aerodrome. The only compensation which the rain brought was a galaxy of little flowers which blossomed in the sand.

This was an unpleasant time. We had very few aircraft and we were all aware of the limitations of the Hurricane I. Moreover, we were tired, and were overdue for relief by another squadron. At last rumours were confirmed, and the Air Liaison section of a South African squadron came up to live with us in order to learn our methods of operating. Then came the pilots of one of the South African flights, and gradually they began to take over operations from us. Just before our detachment was due to finish I had some excitement while on a dawn tac/R. I had taken off at first light and flown over the sea to do a "recce" of the Bomba-Tmimi area at nought feet. On the edge of the Tmimi landingground I was welcomed by much A.A. and machine-gun fire and an explosive bullet burst

the cockpit, striking the pitch-control lever. I ad splinters in my face and hands but the airaft seemed all right. I flew back low over omba bay and found that a thick sand-storm ad blown up. I found my way to the neighbourood of El Adem but could not see the landinground, the sandstorm here reaching a height of ,000 feet. After circling for what seemed a long me, I managed to land with wheels down on a iece of desert where the sand was blowing less crongly. The Hurricane came to a standstill after short run and I then realized how lucky I had een, as all around where I had landed the desert as scarred with slit-trenches. I found my way o an army unit, where I telephoned to Corps I.Q. and later I was driven through the sandtorm to El Adem. Here I learnt that Robert Macgregor, who had also been on a sortie, had ad a similar experience to mine: he had escaped intouched after crash-landing his aircraft on the dge of a minefield!

Before we were finally relieved we had a memorable party with the South African Squadron at El Adem. We had been suffering from an alcoholic drought for some time but suddenly the N.A.A.F.I. at Tobruk received a cargo of gin. We had nothing to mix it with except the salty chlorinated water from the Tobruk water-point, but it was a good party.

We handed over our few remaining Hurricanes to the South Africans and in a few days were driving back to the Delta. We were all very

tired.

Looking back, those few months seem like years. There had been good times, but gradually, as more and more of my friends were posted missing, the good times became less frequent. In retrospect, it seems a miracle that any of us survived. We were operating singly with comparatively slow aircraft. No air force formation had any operational control over us, so that our sorties were unrelated to the operations of fighter squadrons. Except on a few occasions when the flight commander was able to make ad hoc arrangements with a fighter wing leader we reaped no advantage from the air superiority our fighters usually achieved.

The very nature of our task was a dispiriting factor in the long run. We had to bring back information. If we failed to return we had achieved nothing at all. Therefore at all costs we had to avoid offensive action: if we saw enemy aircraft we had to prevent them seeing us. We could never fire our guns unless we were cornered and, once cornered, we knew we would be outnumbered and had little chance of using our guns

effectively.

The fact that we succeeded in supplying the

army with the information it needed can be attributed, I think, to two main causes. First, the spirit of the squadron; we had a fine tradition, which everyone was eager to maintain. Lewis was a first-class squadron commander and esprit de corps was as noticeable in the aircraft hands of the sanitary squad as in the pilots.

Secondly, our good relations with 13th Corps and their appreciative attitude towards us kept us on our mettle. Babe Edwards, our senior A.L.O., was chiefly responsible for this situation. His rare personality endeared him to the pilots at the same time making him a welcome adviser to the Corps Commander. When a squadron is under the operational control of an army formation, the difference between success and failure can lie in the character of the A.L.O.

As we drove back to the Delta we speculated where our next move would be. Paul was off to the Staff College at Haifa. The rest of us were looking forward to some leave and hoping that the squadron would be re-equipped with modern aircraft before we next operated. None of us guessed that in six weeks' time we would be back on the Gazala line with Hurricane Is; mercifully we had no presage of the retreat to Alamein. But that is another story.

### Fighter Pilot

By CORPORAL K. A. BARGATE.

On Wings of Death, serene, alone
Above the clouds in Gremlin Land
I fly, enchanted by the drone
Of Power, begotten by skilled hand.

Aloof from worldly men I scour Precincts of Heaven, God's domain. My sacred trust is to devour The enemies of Peace again.

Inspired by high ideal, I pit
My very hope of life, my skill
Against my foe, who would outwit
My tutelage, my pious will.

The Hell-born scavenger of skies,
The Teuton man I call my foe,
Will very shortly realize
That one of us must surely go.

Death's bony finger ne'er can stay
Me from my urgent, sanguine task;
If Britain needs my life to-day
No better death then can I ask.

# National A.T.C. Essay Competition, 1944

DIGEST OF PRIZE ESSAY BY CADET SERGEANT BARFORD.

#### Subject:

#### "THE FUTURE OF AIR POWER."

N the future air power will depend upon the quality and quantity of aircraft, the degree to which they are operated for the public benefit, the air-mindedness of the people in general, and of the interested part of the Government in particular, and the appreciation that uncontrolled competition is wasteful and that only united effort is really progressive.

Neither the present situation, nor those prospects for the future which are so frequently discussed nowadays, can exactly be called encouraging as far as this country is concerned. Before the war British aircraft were of the highest quality, unsurpassed for safety, efficiency and performance, but we never had the numbers to compete either militarily or otherwise with other countries.

The apathy which still exists among the general public toward the future of aviation must be dispelled, not by specious argument and assurances, but by tangible results. The clamours of the Press and Parliament suggest a greater interest in the question than the general public has so far demonstrated. Public interest should be stimulated and support obtained by a national propaganda campaign, now.

Just as we could never fly successfully without knowing what we are heading for, we cannot suggest a policy without knowing what ends that policy is to attain, and a nice and perspicacious discrimination must be exercised in determining which ends are really desirable.

I suggest that the ends to which we work should be fourfold. First, to ensure continuous peace. This is the most important point. We cannot afford to have another world war. The present one is all but destroying that which it is intended to save—civilization. Another would precipitate both victor and victim into a second Dark Age. Air power must first and foremost provide peace, and anything else that we get out of it must be regarded as merely ancillary to this cardinal aim. Secondly, to provide cheap, efficient and mechanically reliable passenger transport. It must be cheap, therefore extensive, and should not be competitive with, but supplementary to, existing means: it should be concentrated in areas which are inadequately served by rail or water, e.g., from this country to the Continent, between islands, and over frozen and jungle country. Thirdly, to establish and maintain an equally efficient means of carrying light cargo which must travel quickly, e.g., mails, tropical food and supplies to areas inaccessible by land due to natural barriers or extraordinary disaster (fire, flood or earthquake). Lastly, to set up flying and gliding

clubs at which anyone can fly cheaply.

In the design and construction of ground facilities there are no revolutionary changes, other than increases in size, in sight. I include in this statement the "seadrome" proposal, for the aircraft-carrier was in use in the Great War. In the field of aircraft design, however, great changes are already upon us. Great strength and absence of internal reinforcement are features of the Vickers-Wallis geodetic construction, which seems to have a promising future. Landing speeds are being kept down, even for fast machines, by the use of brakes and flaps, notably the Fowler type, which augment the lifting surfaces of aerofoils. All sizes of machines now use the tricycle undercarriage. while automatic controls are now fitted to most types as standard equipment. De-icing technique is still improving. When the full details of Doolittle's raid on Tokyo are released, it will probably be found that assisted take-offs have been a practical proposition for some time.

At the moment wing loadings are going up. and, due to greater aerodynamic efficiency, power loadings are going down for large machines. Davis and other wings of high aspect ratio are

gaining popularity.

Flying-wing aircraft, already being designed in three countries, are popularly envisaged as the aircraft of the future. Helicopters and autogiros. so long neglected, are showing great promise for special duties. Both civil and military aircraft. with the aid of pressure cabins, are exploring the stratosphere, while the glider has been promoted from an amusement to a military necessity.

Engines are, even now, causing some speculation about their future. Having almost exhausted (in the search for bigger power plants) twin-row radial, and four-bank in-line engine possibilities. four-row radials and double-H types, with their manifold cooling and other problems are being discussed. Fortunately, at a time when the complexity and cost of the bigger reciprocating power plants promise to outweigh their advantages, the rotary\* engine, with its comparative simplicity and greater mechanical efficiency has appeared, and in this field the jet-propulsion and gas turbine schemes hold out great possibilities.

The question of fuel is the critical factor, for while the world's oil resources may be large, we cannot continue using them up at the rate of 300,000,000 tons per year indefinitely. One example will amplify the position. If every motorcar owner in Britain ran a Tiger Moth on 70 octane petrol for two hours on 300 days of each year, the petrol and oil used annually would be 15,000,000,000 gallons, i.e., almost one-third of the total world cracking capacity, and would cost not less than £12,250,000,000, including tax. The United States has ten times as many cars as Britain.

The need for an all-embracing policy is apparent. Before the war there were upwards of fifty variations on the single-engined light runabout aircraft theme, all of similar performance; each maker tried to undersell his rivals, and each country, by means of tariffs, insensibly boosted the competition. If this state of affairs continues after the conclusion of the present conflict, then we shall still have to fight, but this time a bloodless; economic war, which will be quite as destructive as the present one.

The problem can be solved, and would be, if the politicians of to-morrow realized that the swings and roundabouts theory is the keystone of all international collaboration. I suggest two four-point international agreements, to be complementary to the food and raw material agreements which are promised, and which would fulfil all those conditions which were declared necessary in a former paragraph. The first plan is as follows:—

First, that complete interdependence between nations shall be attained. That an international council shall be set up to direct aircraft production, and it shall ensure that research, development and production shall be both economically and efficiently carried on. That research and testing facilities shall be placed outside the control of private firms to exploit and, administered by this Central Organization, shall be located in some country so small that it cannot support an aircraft industry. That, under the research organization there shall be sufficient technical institutes and universities specializing in aeronautics to provide the necessary engineers and designers

for the industry throughout the world. Based upon the latest technical developments (to which all will have access, through the organization) design by private firms shall be encouraged.

Secondly, that the small nations of the world, assisted financially by the Central Organization (which in its turn would be financed by contributions from every Government) shall set up their own aircraft industries. This will be part of the general post-war scheme for the industrial development of small countries. Priority shall be given, however, to one large country—China, who has a mechanically minded eternal enemy on her doorstep.

Thirdly, that, just as no nation can claim territorial waters outside the three-mile-limit, so the air above a zone 5,000 feet deep immediately over land shall be regarded as international. Further, the great success, which resulted from the experiment of "free cities" prompts me to suggest that, with the exception of municipal airports, all national airfields and waterdromes shall be made international, being under the general control of the Central Organization, and the protection of the International Air Force, although it is to be hoped that there will not be anything to protect them from!

Fourthly, that the Central Organization will regulate production according to demand, and that construction shall be evenly distributed among the industry, regardless of who designed which machine. There will be competitions in various spheres of designing and invention, and the most successful designs will be selected for production. The guerdon would be not large contracts but generous sums of money provided from the funds of the Central Organization. Other competitions on the lines of the Schneider Trophy races will be organized, and the experience and designs gained will become the common property of all who subscribe to the Central Organization. Not only high speed, but also range, altitude, range of speed and low weight/h.p. ratio for engines, etc., should be the subject of competition.

Complementary to the plan for civil aviation a similar one covering military aircraft must be introduced. The programme should be: complete discontinuation of production on military aircraft immediately the agreement is signed. Under whatever international body is set up, an International Air Force will be constituted. Competitions will be arranged for design of warplanes, as suggested for civil types to ensure that the machines will be the most formidable possible. But—and this is the most important point—the very smallest and most inoffensive countries in the world, Switzerland, New Zealand and Den-

<sup>\* &</sup>quot;Rotary," here, means not a reciprocating rotary engine like the Gnome, but a power plant in which rotors move only about their axes, e.g., the compressorturbine jet-propulsion units.

mark, for example, and *only* those countries, should be allowed to build the machines. They would be used to equip and maintain the International Air Force.

We shall have air power. But it will not be the ability for one dictator or country to rain death and chaos upon another; it will be the turning of this exceptional invention to serve the ends of the people; it will be the ability of the common man to enjoy the pleasures of flying, and the elimination of the euphemistic tone in which we nowadays hail "the blessing of the aeroplane."

What will all this bring? Happiness, peace, freedom, security, plenty? Or just a repetition of the events of the past century on an infinitely

larger scale?

I believe it will bring the former. I believe that air power will at last bring peace, and that the nations of the world, confronted by that which

is greater than themselves, will find their earthly differences to be petty and transient. I believe in the eternal power for good, in the ability of men to live together peacefully, in the determination that the mistakes made in the conquest of the world shall not be made in the conquest of the universe. I believe that these things can come to pass if we will make them, and that then the change in human nature, the elimination of greed as a motive force, will come about, effortless. imperceptibly. I believe that we shall find Heaven upon this earth, and lose Hell in past history, and that mankind will find salvation through that same air power which so nearly plunged it into the Valley of the Shadow; and I believe that universal happiness, which after all is the greatest end of all, will be attained in the endless, united effort of the conquest of the eternal and the in-

### **Service**

By Wing Commander B. Robinson

SERVICE takes many forms. What does it mean to the R.A.F. officer? And what are its possibilities? This is an attempt to answer these questions.

The love of adventure, inborn in our island race, was the instinct prompting the majority of officers to join the Service before the war. Nor were they disappointed. To them as junior officers Service life offered all that could be wished—flying, a widening horizon overseas, sport, leisure in which to broaden interests, friends, the joys of leadership and contact with men. Life was full and lived in the present. Few asked themselves the question "Why am I serving?" and there was nothing to be gained by so doing. Unconsciously the spirit of service pervaded every action in this young effort.

The quality of the pre-war air force has since been proved. It alone made possible the colossal and rapid war expansion. The enthusiasm and drive of the young pre-war officers, devoted to the R.A.F., have indeed borne fruit. As pilots they wished to excel, as in sport, purely for the pleasure of becoming expert. Their aim was to excel and to enjoy life. There was no self-seeking or vice. The horizon was wide and bright. Thus the keenness of the individual for his profession resulted in the R.A.F. becoming the most efficient and potentially powerful air force in the world. The young officer, without realizing it, was serving indeed in the true tradition.

The years went by. With promotion came in-

creased responsibility. Perhaps a second responsibility was added—that of a wife and young family—difficult to reconcile with the earlier conception of service. At the same time the cares of "office" crept in.

War came. A new purpose arose, giving new life and inspiration and uniting the nation in its "darkest hour" as never before.

Once again the young officer's doubts were removed and a definite aim re-established—to win the war. He redoubled his efforts; the Service came first. To some came honour and distinction, to others just hard work without either. The Service changed from a family to a force a million strong. New blood—volunteers and conscripts swelled the ranks. The small band of pre-war regulars was spread thinly over the face of the world. As a backbone they braced the Service into a powerful force with an unbounded enthusiasm and the highest morale. The spirit of service—readiness to give, and give all, if necessary —was the inspiration. And this continues. The possibilities open to, indeed the responsibilities of, the regular officer are enormous. Is he a leader —a giver to others? Is he fitting himself, by study, hard work, and example to point the way?

Here the Service stands, a million men and women devoted to its cause. The war will be won because the spirit of service has roused, in the nick of time, the Empire's manhood from its inter-war lethargy. Service has taught the value of traditions, the reality and power of the Empire

brotherhood, and through allies the possibility of international co-operation. With victory, will all this be lost? Will the people slip back to insular or even Empire introspection? This is the danger, for as soon as the positive, unified direction of war is lost the individual will waver. He will find the ground slipping beneath his feet—he will be groping—his aim gone. Only if each individual (and so the nation, being a democracy) can revise his war-time aim, revise it aright, and maintain it, can there be any hope of winning the peace.

Whether he remains in the Service or returns to civil life, the R.A.F. officer will find himself wavering too, searching again for his aim. Surely, if so much good, so much strength, and so much unity can be found in war through the spirit of service the same formula should be applicable, at least in part, in peace. There it is. That is his aim, to preserve and develop the spirit of service throughout the Empire and the world.

What do these abstract ideas mean? Do they provide a practical, concrete aim? Internationally, yes; there must be co-operation. The day of the small nation is past. The big Powers must combine to order the world for the good of all peoples and be strong enough morally to make decisions for that common good and physically to enforce them. For the Empire the mutual spirit of service with the Mother Country, the readiness to unite in the common cause, believing that in that cause lay the hope of the world, has already proved its power. Preservation of that spirit of service and the closer knitting of the bonds of the Empire brotherhood is the post-war aim, promising security and development. For the individual preservation of the spirit of service entails, first, setting himself a private code, the key word of which will be unselfishness. And, secondly, it embraces realization of his responsibility as a unit of the nation. Just as in the Service he took an active part in making the wheels go round, so as a civilian he should continue to be interested in things other than his business and family. National service for all classes of society after the war will help to keep alive the spirit of service. War strikes home direct these days to the man in the street. It is now more than ever before, therefore, his direct concern. He must have a say in the nation's policy. This war is also a social revolution. After it the march towards equality of opportunity will be found to have made colossal strides. Better education, health services, building development, agriculture, Empire and international relations—all these things should be the concern of the individual. Merit, not family or riches, will be the criterion. Will the human material available after the war be fit to make a success of all this reconstruction? Only if the individual maintains as his aim the preservation and development of the spirit of service.

The R.A.F. officer is not only an individual but a member of the most potent force in the world the air. The R.A.F. has been in the van of progress. The minds of men who have flown over all the earth should be best suited to grapple with world problems. The air is one of the keys to the future prosperity and peace of the world, and the R.A.F. officer can devote himself to fashioning at least a small part of that key so that it turns the lock more smoothly. He has, then, in addition to the individual's private aim a supplementary professional aim—development of some aspect of the Service to increase its efficiency either as a link in Imperial communications, as a unit of a World Air Police Force, or as a vast home auxiliary air force. This supplementary aim is closely related to the private aim of preserving and developing throughout the Empire and the world the spirit of service, learnt in war.

The R.A.F. is, however, only a small part of the Nation's population. Even the combined strength of all the Dominions' services is the minority compared with the masses engaged in wartime industry, where probably money and "self" have loomed larger than service. But the Battle of Britain has shown that quality without quantity can achieve the seemingly impossible, where there is universal determination to achieve a definite aim. The assets of the Empire are—to borrow a recent phrase of the Minister of Labourno longer to be reckoned in gold or foreign investments but in the ability of our people to create and to serve." The R.A.F. officer has the opportunity to play his part in leading that creation and in preserving that spirit of service.

### A War Rhyme of The R.A.F.

By C. L. M.

The Aircrafthand is a rara avis (Said Air Vice-Marshal Dobsleigh-Davies). Air Commodores may yet be found With patience, if you hunt around: Group Captains, in quite fair condition, Can still be got on a requisition; While Wincos, when you're needing any, Are off the points and three a penny. Let's face the fact that (begging their pardon) They're all decidedly common or garden; But that homely treasure, the Aircrafthand, Has strangely fled from our hard-pressed land, And I rank him rarest of raræ aves (Snapped Air Vice-Marshal Dobsleigh-Davies).

## On Education for Greatness in the Living

"... While human nature and inhuman nature hardly change at all, there can be no New

Worlds."

"... It is a very remarkable thing, and an encouraging thing, that the 'intellectuals' are everywhere turning to religion, as the only hope of humanity. I hope they will make themselves heard, and perhaps they will, for they are all laymen."

-Very Rev. W. R. Inge, D.D., in "End of an Age" (" Standard," 8th May, 1944).

"... Out there where they crossed the rivers —the Primosole and the Trigno, the Sangro and the Volturno—and men died in the quicksand and the swollen waters, each had found something. They found that united in great purposes, in the winning of battles, the conquest of mountains, the bloody crossing of rivers, the lives of men become meaningful, their stature great, their dignity imperishable. Life was more than a scramble for jobs, a competition for petty. advancements, a snug bank account and unconcern for the welfare of one's fellows.

"The dead knew it, the wounded knew it, and if they wept in the night, and sometimes died

before morning, it was because this realization had made life richer, fuller, more important, and they so hated to die now that they had found it

"The living who return know it. They know that a mountain of corpses must be more than a pile of dead men. Under the flares in the night shattered by gunfire, they have seen it as a great fortress—men who have died to shield something real and noble in themselves, something real and noble in all that is struggling, hoping, human life.

"Then, coming back, bit by bit they have seen the great fortress made by the dead forgotten in the petty concerns of living behind the battlefronts, in the tussle to 'get your share.' And they think: 'Is man doomed to know grandeur only in death and conflict? Cannot there be a meaning and glory in living just as there is in dying? Cannot men build a world where the best of what is in a man will be wanted in peace as it is now needed in war?'

"Death is not enough. The world must be made a place for greatness in the living."

-Broadcast in the B.B.C.'s North American Service by S. L. Solon, American journalist and War Correspondent for the London "News Chronicle."

### **Education for Greatness**

By SQUADRON LEADER J. GINNETT

WAS in Paris in the Spring of 1933. Only a few wary souls then noticed, lurking on the horizon, the cloud that was later to cast so dark a shadow across the world. The crowds on the boulevards and in the cafés chattered and idled in the sunlight. The Seine could still flow through the French heart of France; the tourists could still shout at the gendarmes, or rummage in the boxes of the *bouquinistes* on the parapet of the embankment; the chorus of the Folies Bergere was still full of Americans; and in the still hours—if any hours in Paris are ever still—the cortége of market carts still bumped noisily across the Pont Neuf to les Halles. It was all to go on for a few years.

Wandering in the Musée Guimet, among the ageless and unchanging, but ever different, smiles of the Buddhas I discovered the Greek heads. Among all the Indian Art I found a case, almost hidden in the corner of a room, of small terracotta heads and figures, so undeniably Greek that my first thought was to blame the inefficiency of the French for putting them there. But my judgment was hasty. They were from the Valley of the Indus and were dated roughly 300 B.C. They were a legacy of that great, almost fantastic, march when Alexander of Macedon led his armies across the world and over the Hindu Kush to India. The Greek culture had gone with these armies, and now the product of it stared me in the face in Paris in 1933. I began to see a new use for armies.

The years have passed and it is now 1944. I am at the Royal Air Force Staff College. I am there because the cloud, that seemed once so small and insignificant, is no longer on the horizon, but has rolled forward and now envelops the earth. And because of that cloud I have been. like millions of others, torn from my normal life. and built into the most vast military machine the

world has ever seen. I cannot help thinking again of those Greek heads. I go back to my old ideas and I am more than ever convinced that there is a new use for armies.

Now, there is a sense in which armies, in peacetime, are unproductive. They are an insurance, and just as a fire-insurance is unproductive if your house is never burnt down, so is an army unproductive if you do not use it. We have learnt to our bitter cost how unwise it is not to insure adequately.

But why should armies, in peace time, be unproductive? Why should they not be used as a positive instrument to promote culture instead of as a negative instrument merely to preserve whatever culture may happen at the moment to exist?

"Culture" is a suspect and dangerous word; people are afraid of it. It has come to savour of preciousness divorced from what are called "the practical realities of life." Should they not, I wonder, be called "the practical unrealities of life"? Perhaps the Germans, who have harmed so many other things, have harmed this word also, by accenting the "Cult" and importing into it a racial significance which is foreign to its true meaning.

The essence of the meaning of "cult" is "devotion to a particular person or thing." The essence of the meaning of "culture" is "growth and development." Culture is progressive; in it are the seeds of further and better growth; it has the power to improve and enoble. True culture is the mainspring of civilization. You can measure the culture of any people by the ability of that people to understand, and deal with, the immaterial side of the Universe.

For Man is a strange creature, who lives in two worlds: outside him is the visible, tangible world of sticks and stones, of railway engines and bathrooms; inside him is the invisible, intangible world of ideas, thoughts, emotions, desires and dreams. We call this outside world the world of "cold, hard fact," and dare not ignore the claims it makes upon our attention. But inside us there is the changing, disturbing, now shadowy, now brilliant pageant of our mental and emotional life and the claims that it makes upon us are equally and often more urgent. It is for us a Jekyll and Hyde world and we are sometimes most unsure of it.

Man is in, and of, the world material. He is also of the world immaterial and it is by this world that he is ruled. His desires, his hates, his thoughts govern him. "There is nothing good or bad but thinking makes it so," said Hamlet. In this immaterial world lies all meaning and all value; in it are the springs of the soul from

which flow all art, all philosophy, all religion and all science. The mystery of the soul of man is that without these things it perishes. Not only Cleopatra but all of us have "immortal longings" in us. We neglect those longings at our peril, for man is man because of them. And because of them also civilization exists.

Civilization is always in danger. The eternal enemy, Barbarism, is ever watchful of any chance to destroy it. All history is the record of the struggle between the two great forces of civilization and barbarism, with civilization always at a disadvantage in the fight. It is at a disadvantage because, to defend itself, it must employ against barbarism the methods of barbarism; it is driven to violence and violence begets violence; force begets resistance and resistance begets force. So does the vicious circle start. And civilization is at a further disadvantage because it is constructive, and like all such processes, slow; barbarism is destructive and therefore quick in action. It took nearly a hundred years to build the Gothic Cathedrals. They can be destroyed in as many hours.

Why are we now fighting this war? We may accept superficial facts as final facts and think of Nazism and Fascism, the insatiable demands of Germany for world domination, as the cause. No doubt they are the immediate cause, but they are the symptoms of a disease that had in the years before this war infected the whole world. This war is really a world revolution to kill civilization, and only by thinking of it so shall we win the peace. It is winning the peace that matters to us. We must never forget that we have not finished when we win this war, as win it we shall. Victory for the Germans is all they need or seek. For us, victory, though essential, is nothing in itself; it is only the beginning. We have not only the rebuilding of a mauled and shattered Europe to do; we have the reshaping of our values, and that is no easy matter.

It means that we must think of the world in terms of this endless struggle between civilization and barbarism. We must be eternally vigilant to detect and frustrate the attacks of the enemy, barbarism. Is it meaningless that one of the names for Satan is The Destroyer? Let us realize clearly that barbarism is of two kinds, active and passive. No man is so blind that he cannot see active barbarism at work. But passive barbarism is far more dangerous because it is far more difficult to recognize. The signs of it are many and various; among them are complacency, laziness, triviality, the worship of Mammon, dishonesty, cowardice, hypocrisy, materialism, all that centres interest on, and attaches undue value to, the world of material things.

Every man who prefers profit to righteousness, who can view with complacency an injustice because "it pays"; every man who makes a shoddy thing for sale when he might make a good one; every man who sells implements of war to a foreign power knowing that they may be used against his fellow-citizens, and mutters "business is business"; every man who lies to his own advantage; all these are passive barbarians. They make straight the path of barbarism and rot the civilization of a nation. It is an insidious, almost invisible process and we do not see it until a culture collapses before our eyes. The great heritage of France was sold in this way.

Before this war the forces of barbarism bid fair to have the whole world in fee. That pre-war world was a sick world; it was a world of which the God was Profit, and its John the Baptist, Economics. It was a world that had, above all other things, to be prosperous. A Prime Minister of England dared to fight an election with "Safety First" as his slogan. "Business as Usual" became the first article of Faith—"Business as Usual," even though the Emperor of

Ethiopia might cry in 1935:

"Do the people of the world not yet realize that by fighting on until the bitter end I am not only performing my sacred duty to my people, but standing guard in the last citadel of collective security? Are they too blind to see that I have my responsibilities to the whole of humanity to face? I must hold on until my tardy allies appear. And if they never come, then I say, prophetically and without bitterness, the West will perish."

The world dismissed that prophecy as "mere rhetoric." We have yet to see whether it will be fulfilled; there is still plenty of time and opportunity for the landslide to come upon us. The world, unheeding, heard that grim warning, but could not have intervened even had it wished, sunk, as it was, in the slough of complacency, triviality and materialism. It had sold its birthright for a mess of pottage, and was well pleased with the heresin

with the bargain.

It is so easy to see all this now. It is so easy to look back and see how our inaction over the reoccupation of the Rhineland, over Abyssinia, in
the Spanish War, in the Japanese War with
China, led us directly and remorselessly to that
shameful day when another Prime Minister of
England was inexorably forced to sell an entire
nation to the forces of barbarism, and then to
pretend that we had achieved "Peace with
Honour."

On that day the grey island eyes of England hardened. The English spirit stirred again. It was not too late, just not too late.

But in very fact, only just not too late. France was a mere shell of her former self and ready to crumble at the first blow. A few more years, but for the warning of Munich, might have seen the English in the same condition. The world had watched the forces of barbarism actively at work and had, as it imagined, prudently withdrawn the hem of its garment from the contamination. It did not notice—did not dare to notice—that these same forces, in their passive manifestations, were rampant everywhere.

Professor Whitehead has said, "Moral education is impossible without the habitual vision of greatness." That is what the world had lost; that is what the world now needs—"the habitual vision of greatness." Too long have we regarded civilization as a by-product of economic progress; too long have we sought to cure the maladies of the world's soul by increasing its income. We shall do well to remember that panem et circenses were signs of a sickness that brought low a Roman Empire far more solid than the fancies of a megalomaniac.

We cannot build a new world with hungry and discontented men; but neither can we build it with lazy men, whose minds and hearts are centred in their stomachs and their passbooks. Let us not, in all our planning for a better world, lead men to suppose that by changing their circumstances we have effected, or can effect, that "change of heart" we hear so much about. Progress is not to be had by adding bathrooms to cottages, and building cinemas in every village. By all means let us arrange the material advantages of the world as fairly as may be for all. That is necessary, but it is not enough.

If the mind of a people be concentrated too much on "things earthly"; if it has not learned "to value spiritual things for their own sake, and earthly things for the sake of the spiritual "that people is easy ground for tillage by passive barbarism.

To-day we pay but lip-service to culture. We are content that a few only should concern themselves with it, while we look on, suspicious and condescending. We have allowed, even encouraged, our artists and our philosophers in the paths of intellectual snobbery and self-righteousness. Art is no longer in the people; it is in the hands of a "precious" clique. Look what this has done to our painters? And can we blame our poets that they write as they do? Is it an accident that the prayers of Sir Francis Drake, a plain sailor, are finer than any bishop can write to-day? Is it an accident that that same age produced the Authorized Version? Produced it in a committee of 47! Could we do that to-day for

l our modern progress? The Elizabethan age as an age when greatness stalked the land. here were many evils, poverty, social injustice, is ease. Those things have not vanished, but are anishing. Have we bought them off at the price obscuring our "habitual vision of greatness?" so, there is little hope for the world.

Some will argue that it is absurd to place so igh a value on culture; that it cannot prevent ar, the most destructive of the forms of bararism; that war is prevented by battleships, and anks and aeroplanes arrayed to deter an enemy. hat is true, in part. Unfortunately we cannot et dispense with these things; to be without them to invite disaster. The new weapon of air power as put into the hands of barbarism an arm so owerful that we dare no longer be careless of s use. We must keep our armies, and our navies nd, above all else, our air forces until that far-off ay when mankind no longer needs to use them. We are not, here and now, greatly concerned with hat day. Perhaps it will never come. But we are reatly concerned to make war more unlikely. nore infrequent. And this may come about when he Great Powers of the world are willing to use heir arms, not only for their own advantage but or the advantage of all mankind.

Our reason for the use of arms is a test of our culture. Are we only to use them in our own interest? Or are we to use them for the succour of all who are threatened or oppressed? Only those who value culture rightly will answer these questions rightly. It is too much to hope that all men may agree to answer aright. But enough men must do so. And what more fitting than that the right answer should be given by the very men who bear the arms—the Services.

#### THE "HABITUAL VISION OF GREATNESS."

The men in the Services are already trained to a fine tradition of service and unselfishness. "Theirs not to reason why..." may sound like mere jingoism; but it is also evidence of willingness to die for the immaterial idea of the traditions of the English soldier. There is nobility in that. If men can be educated in these traditions can they not be educated to the "habitual vision of greatness"?

As a body the Services possess unique opportunities. The world outside the Services competes. In it men are exposed to all the trials and temptations of "earning a living." He who cannot make money to buy his bread cannot eat. He may too easily be tempted, if not to steal it, then to acquire it in any manner that will give him an advantage over his fellow-competitors. But the men of the Services are free from this haunting

pre-occupation. They are not harassed and driven to outwit their fellows to get their daily bread.

They have also, for the same reason, more leisure in peace time. The development of culture demands leisure and freedom from worry. The man whose attention is riveted by circumstance on the need for outwitting his fellows, too often becomes a slave to his own cunning. He has not, and dare not make, time for the study of anything that will not have immediate practical results to his own benefit. He is forced to make a virtue of his slavery. But the men of the Services are not so fettered. They do not compete among themselves for their living, nor with the world outside. They are free to devote all their spare time, if they choose, to the study of culture. And they can follow their chosen road without fear, or hope of favour, or expectation of reward.

Finally, the Services are more united than any other body of men in the country. Their calling unites them, and their tradition, and their propinquity. This cohesion makes them readily susceptible of education. The education we all get at school is, in the main, designed to be useful in a practical world; in any case, it endures but a few years of our whole life. But the men in the Services are there for the major part of their working life, and are subject to education the whole time.

Education does not mean the teaching of dogmas; to teach dogma is to close the mind, and the purpose of education is to open it to the whole field of human endeavour. It is not forcing facts into people that counts, but the awakening of them to an interest in the true significance of life. True education enables a man to see life steadily and to see it whole. An educated man is not easily misled by partisan pleading; he abhors hypocrisy in life and in art; he will not tolerate catch-word philosophy; nor be complacent of the lowering of standards in the name of "business expediency."

The Services, educated deliberately to the "habitual vision of greatness" would be the cultural backbone of the country. They would be the most instructed, valuable and, in the end, most productive element in the whole community. It would be difficult even for a world of passive barbarism, of glib-tongued politicians and money-mad financiers, to ask, without shame, a body of such men to fight and die, for no more than their own shabby safety.

For the value of this education is not for the Services alone. It would inure all. The contacts made with men outside the Services might well sow the seeds of a new hierarchy of values. We are all inclined to under-estimate the importance of our influence on our fellow men, and to shirk responsibility for the views we express. The Services would not need to preach culture; they would need only undeniably, unmistakeably, to possess it.

The British Empire reaches to the four corners of the earth, and in every corner are the Fighting Services. No part of the world is beyond the in-

fluence of their contact.

In the West stands the new world of the Americas; in the East is the rising world of the New Russias. Between the two lies England, rooted in the traditions of European Culture, perhaps after this war to be the only powerful source of that culture to survive.

Let us not forget the words of Disraeli:

"We live in an age when to be young and to be indifferent can no longer be synonymous. We must prepare for the coming hour. The claims of the Future are represented by suffering mil-

lions; and the Youth of the Nation are the trustees of Posterity."

Across the Atlantic comes the echo from the

lips of Abraham Lincoln:

"The occasion is piled high with difficulty and we must rise with the occasion. Fellow-citizens we cannot escape history."

Dare we accept the challenge? Or are we indifferent to the verdict of history? We cannot, if we would, rest upon our achievement. The silent witness of the Greek heads in the Musée Guimet is an accusation and an inspiration. More than two thousand dusty years have not dimmed their beauty nor blurred their message. Their power to civilize is untouched. The armies of Alexander, their conquests now vanished into the mists of legend, yet spread a culture which is still the glory of Europe. Is it too much to hope that the British Services may accept a task more splendid and more lasting than any feat of arms that even they have ever accomplished?

# A Way of Life

By S. P. B. Mais.

SQUADRON LEADER GINNETT, in his article "Education for Greatness" maintains that the men of the Services may well take the lead in the post-war attempt to achieve a higher culture.

They are, he reminds us, already trained to a fine tradition of service and unselfishness. They are free to devote all their spare time, if they choose, to the study of culture. The Services, educated deliberately to the "habitual vision of greatness," would be the cultural backbone of the country.

I admire Squadron Leader Ginnett's spirit. The operative words, however, of his argument are these: "If they choose."

Let me quote a few extracts from a letter that I have just received from the ex-headmaster

of a famous public school:—

"I am now giving up nearly all my time to lecturing to the Forces. I like it better than looking over indifferent Greek proses produced by some Classical Sixth in evacuation, but my A.E.C. chief in town who makes the engagements says, when I talk about subjects, 'No demand whatever for any sort of literary subject.' I do not feel inclined to sit down under that finally. I feel that it could be done if you could get the right kind of books supplied in advance. What they read at present, if they read

at all, is, according to a friend of mine who supplies books through the Y.M.C.A., appalling

"For the most part I have to give them British Way and Purpose.' I am not under any delusion that you can turn the half-wits of the British Army into highbrows, but if the percentage of those who read anything but 'floogies' in this country could be raised, say, from 2 per cent. (my friend's estimate) to 4 per cent., it would mean, I suppose, the conversion of some 50,000 to 100,000! A veritable Pentecost."

I have done a great deal of lecturing to units of the R.A.F., W.A.A.F., Wrens, and isolated outposts of anti-aircraft batteries, R.E.M.E.. R.A.O.C., and other departments of the Army

In some instances it has been a compulsory

parade, in others voluntary.

The success of talks can only be gauged by the discussions they evoke, and these vary from the

vigorous to the non-existent.

The Fourth Sea Lord invited me to go round all the Fleet Air Arm stations to stimulate a cultural activity that he found wanting. "After their very heavy day's work in inadequate quarters their one requisite during their brief leisure is the cinema and the dance-hall."

Yet on enquiry I found men take correspondence courses, forming discussion groups, acting, painting, composing, singing, studying

odern languages and indulging in many forms handicraft. They reminded me very much of e unemployed in the depressed areas in 1931, ho had a great deal of leisure and, under guidace, eventually tried to turn it to their profit.

The mind works strangely. While I was readg Ginnett's article my mind flashed back to le Exeter barracks of some thirty-five years go. I was a newly joined and extremely nervous ubaltern. In mess, after dinner on my first night, picked up the current copy of the Fortnightly leview, to see if an article of mine that the ditor had accepted was printed in that issue.

To my dismay, no sooner had I laid excited ands on it (my article was in it!) than the colonel said menacingly: "Young man, put hat down. Magazines of that sort are for your eniors, who can understand them, not for ewly joined young puppies."

I remember no more of my sojourn with the Devonshire Regiment than that one incident.

It seems to me that the whole question of cultural development in the Services revolves olely round the personality of senior officers.

Everyone agrees that a public school's culural standard depends entirely on the personality of the staff. It is equally true of the Services.

I well remember the great success of our quest-night after-dinner lectures in mess at Cranwell during the first year of the College, out that was entirely due to the number of outstanding personalities that we boasted, Charles Portal and Harold Balfour, to mention but two.

It was Charles Portal, Master of the College Beagles, who first aroused our interest in falconry. What was the name of the Wing Comnander who startled us by his intimate knowledge of the pigmies? It was Moore-Brabazon who demonstrated the potentialities of aerial photography. Balfour's contribution was fruit-farming in British Columbia and ski-running in the Swiss Alps. Was it the padre who revealed to us the beauties of Stravinsky and Delius?

At this distance of time it is difficult to remember who started each of the many exciting hares that many of us have been pursuing ever since.

But, oh! the difference between the mess of the R.A.F. College at Cranwell in 1920 and the mess of the Devonshire Regiment in 1910.

And here I am, in the summer of 1944, just returned from lecturing to a unit of Wrens at a Naval Station, as alert an audience of adolescents as ever I talked to.

But the Commandant was worried.

"I feel like a Mother Superior," she said, "but I lack the authority of a Mother Superior. These girls are too young. They come to me at 174 and their interests are divided between the

'flicks' and American soldiers. Neither of these pursuits tends to give them an impetus towards cultural development. The American too frequently mistakes their profession and the films foster the impression that the profession is enjoyable and profitable.

"The tragedy is that these girls of mine are as mentally well equipped as they are physically attractive. My tragedy lies in my inability to find some æsthetic activity strong enough to wean them from the soldier and the cinema."

"If only women," I said, "had the sense to

see the fascination of bird-watching."

"If only I could make them see how much more enjoyment there is to be got out of always being in the company of the first-rate. The habitual vision of greatness can only be kept by being habitually in the company of the great.'

"It needs careful training to make people see that," I said. "It adds to one's enjoyment of wine or tobacco to have a sensitive palate. But most women don't know a good wine from a

bad one."

She grew a little restive.

"Is that important? It strikes me as trivial." "It's not trivial when you expand it," I retorted, "for most women prefer a bad man to a good one."

That roused her.

"Nonsense," she said, sharply, "that's one of those wholly unwarranted generalizations that men used to excuse their attitude to women.

We're getting off the point."

"The point, as I see it," I replied, "is that somehow it is essential to the well-being of the future of the nation that we should go straight back to Plato and discover from him how to live the good life, and that means familiarizing youth with the best specimens of the first-rate that we can lay our hands on in literature, painting, music, games, food, wine and people, so that they will turn in disgust from the second-rate."

"Fine words," she said. "How are we going to do it? The appeal of jazz is immediate, calls for no effort, is richly rewarding to the senses. The appeal of Chopin is less immediate, calls for quite a lot of effort, and rewards only those sensibilities that have not already been dulled."

"You've got to create an atmosphere, and atmosphere depends on personality. If Sir Richard Livingstone is to be believed, it was achieved in those Residential High Schools in Denmark. It is certainly being achieved in Henry Morris's Village Colleges at Impington and elsewhere. Stereotyped education has only succeded in stifling adolescent idealism, youth's instinctive desire to keep the vision of greatness before it."

"Is that true? According to the Book of Genesis the imagination of man's heart is evil

from his youth."

"I don't believe that. I was a very normal boy, but I certainly had the vision of Sir Galahad constantly before me, though I never mentioned it to anyone. I should say that a man's love of the first-rate is inherited. A Churchill, a Philip Sidney, a Herbert or Cecil has always been surrounded by the first-rate, the first-rate in achitecture, pictures, books and, most important, first-rate exemplars among his own forbears. It is difficult to make the vision of greatness mean anything to the child born in a back-to-back house in the slums. Evacuate him into the country and he is stirred. He is lost."

At that point our conversation was interrupted, and I got no further opportunity of con-

tinuing it.

The truth is, of course, that we live in two worlds. The dichotomy is not that of the haves and the have-nots in the financial sense, for to be rich does not imply that you are familiar with the first-rate, any more than the fact that you are poor implies that you are unfamiliar with the first-rate.

Wealth (outside the Services) does connote leisure, and poverty the absence of leisure, and leisure is essential for the pursuit of the first-

rate

If you are financially insecure, living under slum conditions, it is extremely difficult to attune your mind to the appeal of anything beyond the earning of your livelihood and the bearing of discomfort.

If you are financially secure you have time to look round and choose your form of entertainment. It by no means follows that the entertainment will provide you with anything more than a temporary anodyne or passing intoxication.

Both the vested interests and your own disinclination to employ your energy pull very strongly in the direction of passive pleasures, and the whole point of the good life is that you should not sit back and pay other people to titillate your senses, but yourself actively engage in some pursuit that will call forth the best that is in you physically, mentally and spiritually.

We have to aim at being a race of creative artists. This means being constantly in the pres-

ence of other creative artists.

We meet, say, Doctor Johnson. We learn from him that there are few more innocent ways of spending life than the earning of money, and on thinking it over agree that we are happiest when we are working, and working for pay. We also have Johnson's own corollary or corrective.

"Getting money is not all a man's business:

to cultivate kindness is a valuable part of the business of life."

The point is that we are stimulated by opinions that come from the lips of the first-rate in exactly the same way as we are stimulated by the sight of a signpost to reassure us that we are after all on the right road.

We want to know where we are going and we want to know how to get there. It is the province of the first-rate to provide us with that information.

Other companions, Madam Bubble, Mr. Worldly Wiseman ("Man of the World"), Lord Hategood, Mr. Talkative, Mrs. Timorous, Mr. Despondency, Mr. Facing-both-Ways, and the rest are just a waste of time. Indeed, they not only impede our progress, they both bore and depress us.

We cannot remind ourselves too often of the truth of Ruskin's remark that there is so much of the first-rate in the world that it is just cray to waste any time at all on the second-rate.

The fact that we quite often mistake the second-rate for the first-rate is just part of our training in good taste.

Selection is the first requisite of the artist

We test how far up the ladder we are by our capacity to shed encumbrances and carry only the durable equipment.

What then specifically are we to do if we are to keep before the coming generation the habitual

vision of greatness?

First to remember that, as on the Pilgrims Way, there are many tracks. They all lead to Canterbury, and they all keep along the curve of the North Downs, but within those limitations there is a wide divergence of choice. Some prefer to keep along the valley all the way, some keep along the crest, some half way up, others move diagonally up and down like telegraph wires seen from a train, crossing the other parallel tracks.

My own way to the good life has been by way of great authors (mainly poets), the countryside (mainly the hills "whence cometh my help"), and, of course, great contemporaries.

I have been beyond belief lucky in all three. I very early discovered what "Q" called the use of masterpieces: it is to acquire a sense of good taste, to distinguish between cant and the truth, to interpret the common mind of civilization, to open the windows of the soul, to become something.

The countryside teaches me how to commune with myself and be still, it heals my tired body, clarifies my perplexed mind, and exalts my soul. It teaches my eyes how to enjoy colour and har-

nony, my ears to be attuned to sweet music, and my nose to recover its sense of smell.

The great men of my time, Sir Walter Raleigh and stand for all of them, have taught me to ft my eyes from the muck-rake sic itur ad stra.

Other men, other means—Quot homines, tot ententiæ.

I am very far from having achieved the good fe. Fallible man will always fail somewhere.

I want for a moment to come back to these oung women in the W.R.N.S.

The Commandant's complaint was that they ell too easily for the American soldier and the flicks." This is worth examining.

According to Dr. Roger Manvell in his book, Film," from the cinema we learn that sex is bout the most important thing in life.

I am inclined to agree.

Get sex right and you get life right.

Get sex wrong and you may murder or be nurdered. That, I think, is true not only on he stage and in the films, but in real life.

Nature, for her own purpose, decrees that in youth sexual desire looms very large. Who was t in the Socratic dialogues who said that the great advantage of old age was that it enabled a man to look on a woman without desire?

We can, I think, attach little blame to the young girl for being flattered by the attention of an American soldier. His language is original, slick, witty and (in my opinion) not unmusical. He is physically magnificent. He has all the virtues (and the vices) of a child, undeveloped mentally, non-existent spiritually, but as a man terrific. Nature cares only for the physical.

If only one could sweat sex out of the system as one sweats extraneous fat how simplified

would be our problem.

Sublimation of sex, its divergence into other channels is, I think, dangerous because it is in the literal sense unnatural, against nature. What then are we to do?

The answer of course is to provide a counterattraction, and it has got to be a strong counterattraction.

It has to be done by providing better education, of course, by laying a firm foundation so that youth may distinguish from the start the things in life that are worth while from those that are not worth while. This is not done by preaching sermons, by raising the school age, or by holding before their noses the carrot of examinations. It can be done by explaining what education really means, "The way to a habitual vision of greatness," and the plain fact that it is a life-long process, and therefore presupposes facilities for adult education.

Nobody worries about the amount of knowledge that a student imbibes. What matters is that the students should be mentally and emotionally roused. The American soldier can rouse without difficulty the emotions of the callow English adolescent girl. But emotions can be roused in a good and in a bad way.

The music of Brahms and Beethoven, the pictures of El Greco, Gauguin, Crome, Turner, Gainsborough and Reynolds, the poetry of Shelley, Shakespeare, Keats and Wordsworth, rouse

the emotions in a good way.

Side by side with the emotions goes the intellect.

The right intellectual attitude, according to Sir Richard Livingstone, is to find the world and life intensely interesting; to wish to see them as they are, and to feel that truth is both permanent and beautiful.

As I came out of the picture-house the other day after seeing a not wholly satisfying interpretation of the life of Madame Curie, I heard a W.A.A.F. say to her companion: "Gawd! Madame Kia-Ora! She gives me the jitters."

The Curies had the right attitude to life, the capacity to go through hell in their fanatical desire to wrest truth from Nature.

The intellect helps us to realize that sex is not all, that the whole of life is interesting. The intellect helps us to clear our minds of cant, to distinguish between the charlatan and the true man, not to be at the mercy of the sentimentalists, and to worship at the shrine of truth.

"Beauty is truth, truth beauty,
That is all ye know on earth and all ye need
to know."

There is no question whatever that the happiest people on earth (and what is our earthly quest if not for happiness?) are those who, forgetful of self, devote their lives to the disinterested pursuit of truth in science or art for its own sake. Work for work's sake, art for art's sake. That is the seed that we have somehow got to plant in the minds of youth if they are to receive this habitual vision of greatness.

"An eternal trait of men," says Livingstone, is the need for vision and the readiness to follow it: and if men are not given the right vision, they will follow wandering fires."

All right. We will give them the right vision. We will provide the student with access to the best that is being done in his field.

Is he interested in physics or astronomy? We will introduce him to Einstein, Eddington and Jeans. Is he interested in poetry? Let him sit at the feet of Edmund Blunden and Lord David Cecil.

Is he interested in art? We will take him to the great galleries to see Leonardo da Vinci, Raphael, Rembrandt and Holbein.

Is he interested in philosophy? We will intro-

duce him to Plato and Aristotle.

Philosophy leads to religion, and on this point

I think we have to be quite definite.

The various sects of the Christian faith, Catholics, Nonconformists and the Established Church alike, in their fear lest something should be taught outside their tenets have done their best to have all religious teaching abolished altogether. This is called "Conscientious scruple."

In any attempt to encourage youth to recapture a vision of greatness it is essential to make

up our minds about Christianity.

If we do not believe in it we ought to be courageous enough to come out and say so and tell the world what we do believe.

If we do believe in Christianity we ought to preach Christ crucified, realize Christianity in the way that Dorothy Sayers interprets it in "The Man Born to be King" as a way of life, to see Christ as His contemporaries saw Him, and follow Him as His disciples followed Him: "Arrive at the Creed, not start from it."

It has been widely suggested that it is unfair of us to impose any view of life on the child, even the Christian view. As Livingstone very rightly retorts: "Do you allow your child to grow up dirty, greedy, cruel or a liar?" Of course you don't.

The business of the educationist is to provide the signpost. "The way of Christ is the true way to earthly happiness and everlasting life."

"The gospel of materialism is the gospel of death. The gospel of Christ is the gospel of life."

The whole of Christ's life on earth was spent on reminding us that we are members one of another. To follow his precepts is to be well on the way to being the perfect citizen, dedicated to the service of one's fellow-men.

I said at the beginning, and I have emphasized throughout this article, the importance of

the personality.

The fact that we have any goodness in us at all or can keep the vision of greatness before us is due entirely to the proximity of Christ to each one of us.

Fired by His example we falteringly follow to imitate His virtue, ashamed in His presence, we endeavour to conquer our vices.

We may not seem to make much progress, but the main thing is that our faces are set in

the right direction.

Flounder as we may in the Slough of Despond, pant as we climb under our burden up the Hill Difficulty, we are still Christian, or by Christian's side, and our faith is great that we shall ultimately share his fate who "presently found ground to stand upon: and so it followed that the rest of the River was but shallow."

# Security after Victory

# A "TRIPLE BULWARK "AGAINST AGGRESSION

(Address delivered by General Smuts on receiving the Freedom of Birmingham on 19th May)

I count myself fortunate to-day in becoming a Freeman of the City of Birmingham, and I wish to thank the corporation of this great city most warmly for this signal honour. It is all the greater and all the more appreciated because the freedom of your city was by the same resolution also offered to the Prime Minister, Mr. Churchill.

This circumstance, whether it was so intended or not, is indeed a handsome compliment to one of the small ones like myself. For Mr. Churchill beyond all doubt belongs to the great men of our age. The future may place him even higher—in that small select company of really great men whom this island has produced. In the gravest national emergency and a world crisis of unprecedented dimensions he has stood forth as the heroic dauntless champion, the in-

spiring leader, and has once more proved how great a factor leadership is in the determination of our human lot. For me even to be mentioned in his company is honour indeed.

# EXAMPLE TO THE WORLD.

I feel with gratitude, however, that the compliment is more to South Africa than to myself, and that in honouring me you honour and mean to honour my country. And if I may say so, she deserves it. She has deserved it by her service in this world war, and no less by her service in the last great war, and still more by the example she has set a distracted world in her rise from the depths of defeat and disaster almost half a century ago to the position she now occupies

in our Commonwealth of Nations and in the world.

South Africa has set a precedent which deserves the attention of the world to-day. She remains a shining example of the spirit of humanity applied to the affairs of the world. In this proud achievement Briton and Boer had an equal share—generosity and magnanimity were answered by trust and confidence. Fair play and decency, faith and confidence took the sting out of the bitterness of defeat.

Enemies became friends—in a friendship which has now stood the test of two great wars and has become a proud monument to wise statesmanship and a beacon light to the world in the wilder storms of to-day. That is the way South Africa went; that is the way for the world to go if disasters greater than those of the present are to be averted in future.

In honouring South Africa to-day you are doing homage to your own deeper, finer spirit, which at a critical moment made you, the victors, stretch out your hand to the defeated, and so helped them to the happy comradeship and joint triumphs which we rejoice in to-day.

I firmly believe that the story of South Africa during this whole period is one of the high lights of recent history and a pointer to the whole world of the way out for the future. I may add, as a curious sidelight on this whole story, that I first met your Prime Minister in South Africa in that war, worked together with him at all the critical points of the following years, and in our old age we are together still in this the greatest of all wars.

Will the story of South Africa be repeated in the greater peace which is to follow after this war has run its course? Will our victory be crowned by a still greater victory for mankind? At least the story of South Africa is a call to us not to despair but to move forward with faith and confidence.

# Wonderful Conference.

We have other evidence also to hearten us. Among these I mention the Commonwealth Prime Ministers' Conference which has just concluded. It has been a wonderful conference. During the past thirty or forty years I have attended many Imperial Conferences, but I can truthfully say that I recall none which compares with this Prime Ministers' Conference both in the magnitude of the issues raised and in the spirit of mutual understanding which has prevailed throughout.

I am not speaking to you in the language of the *communiqués* which have become customary at international conferences intended to convey to the world the wonderful unanimity and complete understanding which have prevailed. Those formulas are mere diplomatic technique and often cover such nakedness of results and much disagreement. Such technique and disguises are out of place at our Commonwealth conferences. At this conference we discussed not only the problems of war but also of peace so far as we can peer into the future. Some preliminary verbal skirmishes had created the impression that differences might develop at the conference. But when we came face to face we found nothing to differ about in our broad aims and policies.

We found our minds travelling in the same direction to the grand objectives both of war and peace. Essentially there was really nothing left to differ about.

This is really a remarkable fact when we reflect that at our conference the British Commonwealth of Nations spread over all the continents and in all the oceans was represented. We found that the greatest diversity in geographical location and in economic development and circumstances could be reconciled in the same broad principles and objectives.

Diversity is not in conflict with unity; it merely adds to the colour and variety in the pattern of the whole, without disrupting it. East and West, North and South, with all their viewpoints and interests, fit into this larger framework. The war has only riveted this structure more firmly together. The sense of common danger, the devotion to common principles and ideals, the deeper sympathy and understanding they have produced, the feeling of a grand comradeship which has resulted—all these are ties and links and bonds of the spirit which bind us all more effectively together than any mere constitutional or political mechanisms could have done.

I do not think our Commonwealth has ever been in better shape than it is to-day. Organism and soul strengthen, vitalize and inform each other in a unity which calls for no external props and mechanics.

Has this not also a message for the world—like the case of South Africa I have referred to? If large and important portions of mankind, of different race, colour and speech, spread over the whole globe, can work together in peace and understanding, need we despair about world peace and large-scale human co-operation? I do believe that our British Empire and Commonwealth is an answer to the pessimists.

# SIMPLE HUMAN CODE.

The success of this greatest political group that has ever existed is not due to some mystic secret, the possession of some exclusive technique of which the rest of the world is deprived or ignorant. On the contrary, it is founded on what is common to all of us, on that common decent human nature, which we all share. The common principles, I had almost said the commonplaces of decency, fair play, fair dealing, tolerance and justice, the right of each to live his own life freely, so long as he does not interfere with the rights of others to live their lives equally freely—this simple ordinary commonsense human code of behaviour, put into practice and guaranteed by law, with the power of society behind it to enforce it, seems to me to be the British constitution.

We claim no exclusive secret, no special technique and no highbrow metaphysic or science, but simply the precepts and dictates of ordinary decent human experience as our guide in our public as well as in our private behaviour. On this respect for the rights and the dignity of human personality and its free play in this God's world are founded all the law and the prophets of our political creed.

We have no secrets, and we have faith in this code of freedom and in what guarantees it in the nature of things. This may sound simple enough—perhaps too simple. But let us remember that, on the highest authority, all the precepts of religion have been similarly reduced to a couple of quite simple and almost obvious principles. This Empire and Commonwealth of ours will endure and become a blessing to the world so long and only so long as it sticks to this simple human code, which all can understand and all can try to follow. We can embroider on it, we can dream dreams and see visions of a richer more abundant life for the future. But this simple human code is at bottom our law and our constitution, and in a very real sense the property of the whole human race.

# "THIRD FRONT" AHEAD.

Much of our time in the Prime Ministers' Conference has necessarily been occupied with the war. In this fifth year of the war one thought dominates all others, and this is to push the war to a conclusion as soon and as fast as possible. The conditions of physical and moral strain and suffering in all countries, but especially in the enemy-occupied countries, are such that irreparable damage and even the cracking of civilization may ensue if the war is not finished as soon as is humanly possible. With this main question before us I may be allowed to occupy your time for a moment in order to draw attention to some general features of the war.

Much has already been achieved, much that is not only important in itself but also necessary for ultimate victory, much in the absence of which ultimate victory would have been impossible. I mention especially the establishment of our superiority both on the sea and in the airboth of them indispensable conditions for our complete victory in the war. Both have taken time and have an importance not so generally appreciated, but both were absolutely necessarif the war was not to be finally lost by us. Our mastery on sea and superiority in the air have been conclusively won.

On land again two immense positive results have been achieved. In the first place on the Eastern or Russian front the most spectacular victory has been won. Russian territory has been almost entirely freed, and the war from has reached or is approaching Hitler's fortress of Europe. In the second place, on the Southers or Mediterranean front Italy has been totalledefeated and knocked out of the war, with severe losses to Germany herself.

There remains now the task of dealing with Hitler's fortress of Europe in the West and with Japan in Asia and the Far East. Let me say a word about each of them.

Hitler's fortress is now being attacked from three sides—by Russia in the East, by the British and American forces from the Mediterranean in the South, and by the American and British forces from the Atlantic or Western Europe in what has come to be called the Second Front, but is really the Third Front.

This front has already begun in the biggest air attack in all history, which will soon be followed by a great land attack as well. This land attack from the West has been so long awaited and so much publicized that there is great risk that a distorted conception may arise as to the coming operations. It would be well to bear in mind that, however great and important this attack will be, it will be only one of three such fronts of attack.

The issue of the great battle for Europe may not be decided by this front or either of the other two fronts, but all three combined. It will be a triangular attack, the combined effect of which will be the end of Nazidom. There may be checks or setbacks or pauses here or there at any point of this triangle without upsetting the triangular operations as whole, which will remorselessly roll on and close in until nothing remains of Hitler's fortress. And the attack will be a co-ordinated one in which all three will have an important role to play.

The Mediterranean front, which has already achieved such far-reaching results culminating in the knock-out of Italy, may again prove pregnant for the final end. Alexander's battle for

me, already so brilliantly begun, should refore be carefully watched. It was in the diterranean area that the enemy front broke in the Great War. The enemy's resistance re now is proof of the importance he attaches that front.

t would be a serious mistake to concentrate our attention and our hopes for victory on coming Western front, forgetting that all ee fronts are but one and should be viewed a whole. The public would be saved much necessary anxiety by this total view of the ple line of attack, and should not be unduly ted by victories or unduly discouraged by setcks here or there, while the properly conducted unified strategy of the triangle might bring out a final decision in Europe much earlier the pessimists forecast to-day.

### FINAL PHASE IN FAR EAST.

I now come for a moment to the Japanese or in the Far East and the Pacific, where eady the United States of America is making main effort, while the British effort, already ry considerable in Burma and the Indian cean, will in due course be very much enlarged the final moves against Japan.

I am at this point reminded of a prophecy I entured to make at the Imperial Conference of 21, where I said that the danger zone for the ture would not be the Atlantic but the Pacific, ad our political and military strategy should be djusted to that viewpoint. Little did I then think at that prophecy would, in part at least, be fulled in my lifetime.

But events both in Europe and in Asia have oved much faster and on a far more colossal cale than I or anybody else dreamt of twenty-tree years ago, and to-day the final phase of his world war is being fought out in the Pacific and Far East against Japan, who was then still our nominal ally. And the question is whether his is but the opening phase in the great Pacific truggle of the future or whether our security reganization after this war will forestall such a calamity.

In any case one thing is quite clear—we have noved far away from the world of isolationism which some people are still day-dreaming to-

Although one should speak with reserve about in area about which so little is known, I am indined to be more optimistic than many others about the duration of the Japanese war after ditler has been finished. Japan, by moving so ar by land and by sea, has indeed stolen a march on us, but she has thereby given hostages to fortune which may cost her dear.

Already the naval strategy pursued by the American commanders is seriously threatening her far-flung advance embracing the British and Dutch possessions and the island chain north of Australasia. They may all be by-passed from the Carolines and Mariannas now under attack to the Philippines, and the Japanese forces thus cut off must wither like a cut-off branch and surrender or perish nearer home, Japan may then be forced to face the combined Anglo-American air and naval fleets, with results which anyone can foresee.

After the destruction of her navy she may herself have to surrender or starve and burn to death. It is a terrible prospect for 100,000,000 people who set out on the glorious programme of a co-prosperity sphere for East Asia or all Asia. But the way of the transgressor is hard, and it may not be a long one, and the end may not be so far off. At any rate, she will find more mercy from the West than she meted out to her captured victims.

# THE FUTURE OF EUROPE.

And so I leave the war and return to this Continent of Europe and her problem which this war will leave on our hands. What of the future? Watchman, what of the night. For it is indeed night.

The European prospect is bleak and obscure to a degree unknown for generations. The situation is so complex and old concepts and formulas so unhelpful in reading her riddle.

Alongside of the war, with its colossal events, political developments of equal magnitude and greater significance are happening. Small countries are knocked about as of no significance and great Powers are rising and falling. A new obscure world pattern is emerging as a result of these tremendous events and changes. Is it merely countries that are rising and falling, or do we witness also the rise and fall of continents?

America is rising as the new world with quite a new significance of that term. Asia is stirring from her age-long slumbers. What of Europe? Is she sinking under her self-inflicted wounds? That to me is the crux of the present world situation. Europe is the heart of the cause of man, and her decadence would mean an immeasurable loss to all that is most precious in our human heritage. America could not take her place, nor certainly could Asia do so. And Africa is no claimant for such honours!

Europe has been the spiritual home of the West, the source of our concepts of progress, liberty, and of all the other basic ideas of our higher life. I put the problem of Europe, of her salvaging and rehabilitation, first in our pro-

gramme of world reconstruction after this war.

She must not be carved up, atomized, and

reduced to a helpless chaos of fragments. Rather should she receive a new stable structure as the United States or Commonwealth of Europe, a proud erect stature, an integrity and self respect which will enable her once more to be the custodian of the rights and freedoms to which she herself gave birth. And in the making of this new structure this island, with its unique position, should play its proper leading part.

Europe should not become a liability for the new peaceful order now arising, but rather its main pillar and support. And I do believe that this possibility is not mere wishful thinking; that there are forces moving in Europe which, properly organized and directed, will re-create this Old Continent of Europe and open up before it and all mankind a new and more glorious future.

### SECURITY AGAINST WAR.

Second on our post-war peace programme I would place the question of establishing the new world organization for security against war. It would almost inevitably be an improved and reformed version of the old League of Nations. That brave and brilliant improvization failed in part largely because it was not clothed with sufficient authority and coercive power to maintain peace. Next time responsibility should be placed on those who have the power, and the Great Powers who won the war should be made responsible in the first instance for keeping the peace—at least for the transition period until a more permanent scheme for effective police supervision could be worked out. But even more may be needed for the peaceful world order of the future.

The new world organization for peace should also be supported and buttressed by appropriate regional groupings, or by other friendly associations among the nations whose traditions or comradeships in the world war would qualify them as friends and supporters of world security. Such, for instance, would be the fruitful association which has grown up between the United States of America and the British Commonwealth of Nations during this war—in many ways the most valuable by-product of the war.

The understanding and co-operation which have grown up between these two groups form perhaps the most promising and lasting development of this war. It may yet prove a turning-point in history and become the most valuable force behind the new world organization and world progress generally. But let there be nothing exclusive about it, and let it not exclude close collaboration with Russia. Thus would arise a

triple bulwark of the Great Powers agains aggression.

The phenomenal rise of Russia need are frighten the world. She has her part to play in the new comity of nations. She has arisen from var purifying upheavals and sufferings and has still her great contribution to make to human his tory. Let the voice of Tolstoy speak to us rather than that of Karl Marx, who, after all, was not a Russian and never really was of Russia.

So much for the overall political organizations of mankind for world peace. But there is a third and no less important task before us. We must prepare for a new era—for the age of man, the common man, the man whom, in Lincoln's homely humorous phrase, God loves because he

has made so many of them.

From the beginning of this century our generation has been scourged by one war after the other. I myself am now in my third war. For the · common people there have been sorrow and suffering on a scale unexampled in history. Ou conscience is becoming seared. Our sense of pity and sympathy is deadened. Whole populations are decimated, and one reads every moming without pausing to think of the numbers sho over-night in the occupied countries. Village are wiped out, and not even the young an spared, as they would be spared by African savages. The Jewish horror in particular has 1º parallel in history, and a whole race is proscribed and crucified in what is surely the most poignant tragedy of this era.

In all these horrors the common civilians have suffered most. The innocent unnamed sufferer—men, women and children—have been slaughtered in their millions. Their loss has been piuable beyond all expression. One cannot bear to speak of these things, nor even to think of them Before this horror of suffering one stands with bowed head, with averted look, almost with dazed and deadened mind. There is a human appeal to us which we dare not ignore.

After the last war we erected monuments to the Unknown Soldier, as the representative of the nameless heroes sacrificed in the bloody slaughters of that war. And shall we not after this war erect a monument to the Common Man, as the representative of the men, women and children of the civilian populations who paid the penalty and bore the sufferings for the sins and shortcomings of our Western civilization. And should that memorial not take the form of a better social order, of a society with higher standards of living, with more social justice and security, and of better opportunities of life?

Throughout all the civilized world it is felt to-day that much of the unrest which culminates

modern war originates in wrong social econoc conditions, and that to combat war and gression effectively these conditions will have be dealt with in fundamental reforms. With s goes a more enlightened social conscience nich refuses to tolerate the continuance of these nditions.

A double drive has, therefore, become posole, to raise the general standards of life and create a society which will approximate more osely to our enlightened and humane social tlook. If this vision of a better world for the ople as a whole could be realized, social harony and peace could be achieved and the isis laid for that harmonious and co-operative ternational society in which war will finally sappear as an obsolete and discarded practice. Where we failed twenty-five years ago we ay now hope to succeed after the bitter experince not only of this war but of the post-war ocial and economic troubles which overtook us the years between the two wars. And so in a ist peace and in conditions of social betternent our troubled world may at last find the eward for all its frustration and suffering and

ne fulfilment of its vision of a fairer future.

A Sustaining Vision.

Nothing in these war years has been more emarkable than the growing resolve among the beoples that there shall be a better social order after this war, in which the right to home, food, health, education, and work shall be among the birthrights of every citizen. The vision of that better ordering of society has sustained our men and women through all the heavy labours and

hardships of the war. It has kept down the sense of frustration and given them hope and heart and faith. That was something worth fighting for, in addition to the other rights and freedoms and charters.

To many it has appeared strange that in the midst of war and all its preoccupations people should be so influenced by this vision and thought of the future. But it is, in fact, a most human and natural reaction. For if we did not cherish this hope and this faith we might be driven to despair of life itself and think it not worth fighting for. And so we have been sustained by this vision and by the resolve to make it come true.

Hence among all our peoples, in spite of the war and its demands, our parliaments and governments are taking steps to establish the new social code which will secure for all the necessary conditions of a fair civilized standard and a decent life. And so from the ruins of this war will arise the new monument to man, the common man, which will record the passing of an era—the era of social indifference, and the coming of the new age with its higher standard of social responsibility for the welfare of every citizen born into our society.

This war itself may not be too heavy a price to pay for so great an advance. For this advance will not only mean social security for all but also a fair insurance against war. War will thus become but a stage, a passing stage, for man in his long march to a better society and a richer life. So may it be. And so the greatest world war may, perhaps, usher in the greater peace.

# **Post-War Problems**

# **FUTURE WORLD SYSTEM**

(Mr. Churchill's survey included in his opening statement of the two-day debate on foreign policy in the House of Commons on 25th May.)

SEE in some quarters that I am expected to-day to lay out, quite plainly and decisively, the future plan of world organization, and also to set the Atlantic Charter in its exact and true relation to subsequent declarations and current events.

It is easier to ask such questions than to answer them. We are working with thirty-three United Nations, and in particular with two great Allies who, in some form of power, far exceed the British Empire. Taking everything into consideration, including men and money, war effort and expanse of territory, we can claim to be the

equal of these great Powers, but not, in my view, superior.

As head of the British Government or, I may add, as speaking to this House, as a most respected institution in the Grand Alliance, it would be a great mistake for me or the House to take it on ourselves to lay down the law for all these countries, including the two great powers with whom we have to work, if the world is to be brought back into a good condition.

This small island, with this marvellous structure of States and Dependencies which it has

gathered around it, will, if we all hold together, occupy a worthy place in the vanguard of the nations, and it is idle to suppose that we are the only people who are to prescribe what all other countries for their own good are to do.

Many other ideas and forces come into play, and nothing could be more unwise than for the meeting of Prime Ministers, for instance, to prescribe the way that all countries should have to

### RULING PRINCIPLES.

# Charter as Signpost.

Consultations are always proceeding between the three Great Powers and others, and every effort is being made to explore the future, to resolve difficulties and to obtain the greatest measure of common agreement.

A few things have already become quite clear and were very prominent at the conference just concluded.

The first is that we fight on altogether until Germany is forced to capitulate and until Nazidom is exfirpated and the Nazi party is stripped of all continuing power of doing evil.

The next is that the Atlantic Charter remains the guiding signpost, expressing the vast body of opinion among all the Powers now fighting together against tyranny.

The third point is that the Atlantic Charter in no way binds us about the future of Germany. It has no quality of a bargain or contract with our enemy. It was no offer to the Germans to surrender. If it had been an offer that offer was rejected.

But the principle of unconditional surrender which has also been promulgated will be adhered to as far as Nazi Germany and Japan are concerned, and that principle itself wipes away all idea of anything like Mr. Wilson's fourteen points being brought up by the Germans after their defeat, claiming they surrendered in consideration of those fourteen points.

I have repeatedly said that unconditional surrender gives the enemy no rights but relieves us from no duty. Justice will have to be done, and retribution will fall upon the wicked and the cruel.

### WAR CRIMINALS.

# Punishment on Spot.

The miscreants who set out to subjugate first Europe and then the world must be punished. So also must their agents, who in so many countries have perpetrated horrible crimes. They must be brought back to face the judgment of the populations they have outraged, to the very scenes of their atrocities.

There is no question of Germany enjoying any guarantee of any kind that she will not undergoterritorial changes, if it should seem that the making of such changes would render more secure and more lasting the peace of Europe.

Scarred and armed with experience, we intent to take better measures this time than could previously have been conceived to prevent the renewal in the lifetime of our children or of our grandchildren of the horrible destruction of human values which marked the last and the present World Wars.

We intend to set up a world order and organization equipped with all the necessary attributes of power in order to prevent future wars or the planning of them in advance by restless and ambitious nations.

# World Council.

For this purpose of preventing wars there must be a world-controlling council. I am not talking about other purposes, but for the purpose of preventing wars there must be a World Council comprising the greatest States which emerge victorious from this war, who will be obligated to keep within certain minimum standards armaments for the purpose of preserving peace.

There must be also a world assembly of Powers whose relations to the world executive or controlling Power for the purpose of maintaining peace I am in no position to define. If I did I should be stepping outside the bounds which are proper to us and our Allies.

The establishment of these bodies and their relations with each other can only be settled after the formidable foes we are now facing have been beaten down and reduced to complete submission. It would be presumption for any one Power to try to prescribe in precise detail exactly what solution we found.

The mere attempt for us to do so and to put forward what is the majority view on this and that might prejudice us in gaining consideration for our arguments when the time comes, and I shall not even attempt to parade the many questions and difficulties which will arise and which are at present in all our minds.

Anyone can write down on paper at least a dozen large questions of this kind—should there be united forces of nations? or should there be a world police? and so on.

There are other matters of a highly interesting character which should be discussed, but it would be stepping out of our place in the forward march for us to go beyond the gradual formulation of opinions and ideas which is continuously going on inside the British Commonwealth and in contact with our principal Allies.

# Rule of Law.

We must not suppose, however, that these estions cannot be answered, that these diffilties cannot be overcome, that a complete vicy will not be a powerful aid to the solution all problems, and that the good will and pracal common sense which exist in the majority men and the majority of nations will not find air full expression in that new structure which ust regulate the forces of every people as far they may clash with another people.

The future towards which we are marching ross bloody fields and frightful manifestations destruction must surely be based upon the oad and simple virtues and upon the nobility

mankind.

It must be based upon the rule of law which pholds the principle of justice and fair play, hich protects the weak against the strong, if the eak have justice on their side. There must be n end to predatory exploitation of nationalistic mbitions.

This does not mean that nations should not e entitled to rejoice in their traditions, in all ne splendour of their achievements. But they will not be allowed by armed force to gratify ppetites of aggrandisement at the expense of other countries just because they are smaller, weaker, or less well prepared; and measures will be taken to have ample armies, fleets and air forces available to prevent anything of that kind coming about.

LEAGUE LESSONS.

Overwhelming Might.

We must undoubtedly in our world structure embody a great deal of all we have gained for the world by the structure and form of the League of Nations.

We must arm our world organization and make sure that, within the limits assigned to it, it has overwhelming military power.

We must remember we shall all be hard put to it to gain a living, repair the devastation which has been wrought and to give all the wider life and more comfortable life which is so deeply desired.

We must strive to preserve the reasonable rights and liberties of the individual. We must respect the rights and opinions of others while holding firmly to our own faith and conviction. There must be room in this new great structure of the world for the happiness and prosperity of all, and in the end it must be capable of giving happiness and prosperity even to the guilty and the vanquished nations.

There must be room within this great world organization for an organism like the British

Empire and Commonwealth, as we now call it, and I trust there will be room also for the fraternal association of the British Commonwealth and the United States.

We are bound by our twenty years' treaty with Russia, and beside this—for my part I hope to deserve to be called a good European—we should try to raise the glorious continent of Europe, parent of so many powerful States, from its present miserable condition as a kind of volcano of strife and turmoil to its old glory as a family of nations and as a vital expression of Christendom.

I am sure these great entities I have mentioned will in no way disturb the general purpose of the world organization. The British Empire, the conception of a Europe truly united, the fraternal association with the United States, they will in no way disturb the general purpose of the world organization. In fact they may help powerfully to make it run smoothly.

I hope and pray all this may be established, and we may be led to exert ourselves to secure those permanent and glorious achievements which alone can make amends to mankind for all the miseries and toils which have been their lot, and for all the heroism and sacrifices which are their glory.

**Book Notices** 

THE RECOGNITION OF OPERATIONAL AIRCRAFT. By Capt. G. B. Ransford, with drawings by R. S. Sherriffs. (Pitman; 3s. 6d. net.)

A simplification of the normal methods of instruction, and one which the author claims works "and is producing unexpectedly superior results"; a claim that certainly appears fully justified.

BOMBING VINDICATED. By J. M. Spaight, C.B., C.B.E. (Geoffrey Bles; 6s. net.)

Introductory Magnetism and Electricity. By T. M. Farwood, B.Sc. (Hons.). (Macmillan & Co.)

THE UNIVERSE AROUND Us. By Sir James Jeans. (4th Edition, completely revised and reset.) (Cambridge University Press; 15s. net.)

TEN SUMMERS—POEMS, 1933-1943. By John Pudney. (John Lane, The Bodley Head; 7s. 6d. net.)

Practical Analytic Geometry with Applications to Aircraft. By Roy A. Liming. (The Macmillan Co., New York; 4 dollars 50 cents.)

FOGS. CLOUDS AND AVIATION (with 93 illustrations). By W. J. Humphreys. (Bailliere, Tindall & Co.; 16s. 6d. net.)

TEACH YOURSELF METEOROLOGY. By "Aeolus." (The English Universities Press, Ltd.; 3s. net.)

TARGET FOR TO-MORROW. No. 7—CIVIL AVIATION. By Michael Young. (The Pilot Press, Ltd.; 4s. 6d. net.)

# The Atlantic Charter

N the historic three-day discussions (ending 14th August, 1941) which took place somewhere at sea the President of the United States and the Prime Minister, Mr. Churchill, representing His Majesty's Government in the United Kingdom, being met together deem it right to make known certain common principles in the national policy of their respective countries on which they base hopes for a better future for the world.

First, their countries seek no aggrandisements territorial, or other.

Second, they desire to see no territorial changes that do not accord with the freely expressed wishes of the people concerned.

Third, they respect the right of all people to choose the form of government under which they will live, and wish to see sovereign rights and self-government restored to those who have been forcibly deprived of them.

Fourth, they will endeavour with due respect for existing obligations to further enjoyment by all States, great or small, victor, or vanquished, of access on equal terms to the trade and to the raw materials of the world which are needed for their economic prosperity. Fifth, a desire to bring about the fullest collaboration between all nations in the economic field with the object of securing for all improved labour standards, economic advancement and social security.

Sixth, after final destruction of Nazi tyranny they hope to see established a peace which will afford to all nations the means of dwelling in safety within their own boundaries and which will afford assurance that all men in all lands may live out their lives in freedom from fear and want.

Seventh, such a peace should enable all men to traverse the high seas and oceans without hindrance.

Eighth, they believe all the nations of the world for realistic, as well as spiritualistic reasons, must come to the abandonment of the use of force, since no future peace can be maintained if land, sea, or air afmament continue to be employed by nations which threaten or may threaten, aggression outside of their frontier. They believe, pending the establishment of a wider and permanent system of general security, that the disarmament of such nations is essential. They will likewise aid and encourage all other practicable measures which will lighten for peace-loving peoples the crushing burdens of armaments.

# News in Brief

BOMBER LOSSES IN 1944.—During the first four months of this year, 1,041 British and 1,117 U.S.A.A.F. bombers operating from this country were reported lost over Germany and Northern Europe.

AIRCRAFT SUPPLIES TO RUSSIA.—The list of military supplies sent by the Allies to Russia included 6,778 fighter aircraft, of which 2,672 were sent from the United States under Lend-Lease as part of the British commitment in exchange for a supply of British aircraft to U.S. forces in the European theatre.

NEW FLYING BOAT.—Replying to a question on 11th May, Captain Harold Balfour, Joint Under-Secretary for Air, disclosed that a large multi-engined flying-boat, the Shetland, had been built and was due to make its trial flights in a few weeks. It was hoped that these trials would show whether the machine could be adapted for

civil air transport after the war. To an M.P. who objected that heavy flying-boats had a low pay load and were obsolescent for transatlantic work, Captain Balfour replied that the Shetland was not necessarily for transatlantic work, and it might be a big flying-boat with a big pay load.

SLOW PROGRESS WITH NEW TYPES.—In the House of Lords on 10th May, Lord Beaverbrook, speaking on the future of civil aviation, said that the Shetland would not at present be put into production. He regretted that military priorities had held up the progress with new civil types of which a number have been planned. The York is in production on a small scale and flies with Transport Command. Recently a York flew 6,857 miles from the United States to Delhi in thirty-two hours with a load of four tons. The Halifax transport may fly late this year but will not be put into production. A small De Havilland feeder-transport may fly in about a year.

Printed and Published in Great Britain by GALE & POLDEN Ltd., Wellington Works, Aldershot. Overseas Agents, INDIA: Thacker, Spink & Co., Calcutta and Simla. Thacker & Co., Ltd., Bombay. Higgingothams, Ltd., Madras and Bangalore. CANADA: Wm. Dawson Subscription Service, Ltd., 70, king Street East, Toronto, 2 Canada. AUSTRALIA and NEW ZEALAND: Angus & Robertson, Ltd. SOUTH AFRICA: W. Dawson and Son (S.A.) Ltd., 29 and 31, Long Street, Capetown.



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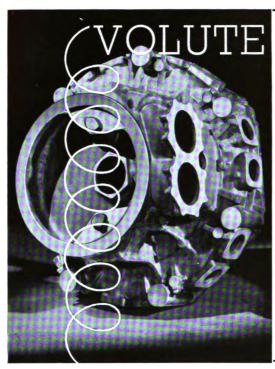
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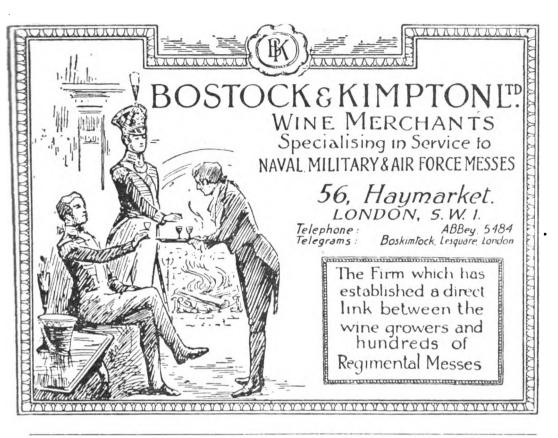
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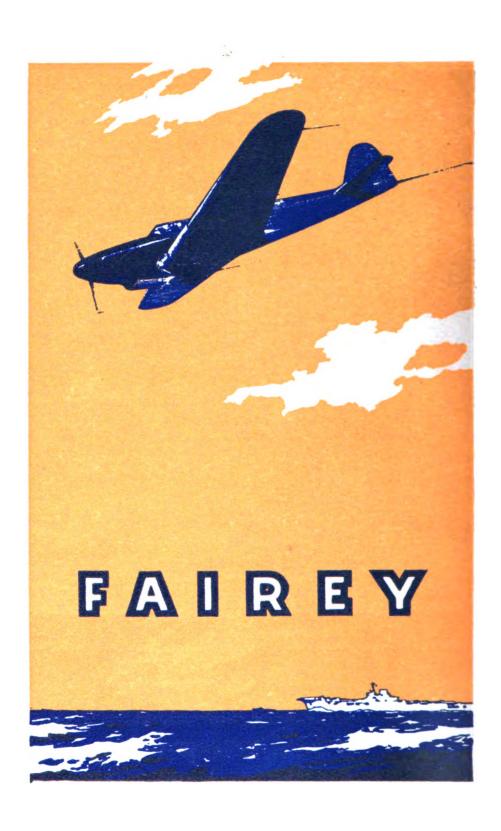
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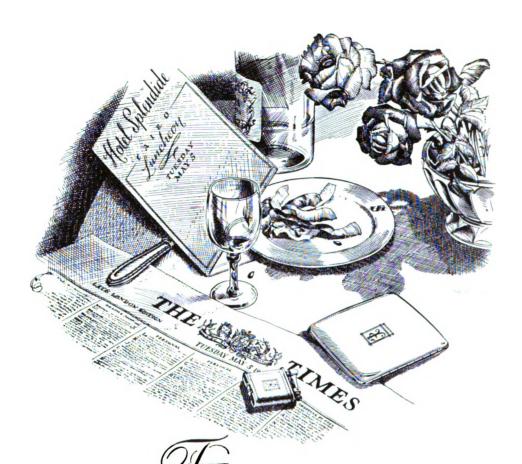
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# THE ROYAL AIR FORCE QUARTERLY

Embodying also the Royal Australian Air Force, Royal Canadian Air Force, Royal New Zealand Air Force, and South African Air Force

### EDITOR:

WING COMMANDER C. G. BURGE, O.B.E., q.s., R.A.F. (Retd.)

Assisted by an Advisory Committee of Members of the R.A.F. and Air Forces of the Dominions

**VOLUME XV** 

SEPTEMBER, 1944

**NUMBER 4** 

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# **EDITORIAL**

# R.A.F. Benevolent Fund

The amount donated by the R.A.F. QUARTERLY to the above Fund for the quarter ended at September is given below.

	£	s.	a.
A.F. QUARTERLY donations September, 1944, Quarter	21	5	0
Brought forward		_	-
Grand Total	 £585	0	0

# **Battle of Britain Sunday**

The Air Ministry announces that the anniversary of the Battle of Britain, of which the culminating engagement took place on 15th September, 1940, will again be commemorated this year.

The victory will be celebrated at Royal Air Force stations by a colour-hoisting parade and a brief service, on the anniversary day.

The public commemoration will take place on the following Sunday, 17th September, when there will be services of thanksgiving in churches of all denominations throughout the country, which will be attended by R.A.F. contingents and representatives of the Civil Defence services and aircraft workers.

A service will be held on that day in Westminster Abbey, which will be attended by representatives of the R.A.F., the Dominion and Allied Air Forces and the Navy and Army.

The Archbishops of Canterbury and York and the heads of other denominations have expressed a desire that there should be special prayers of thanksgiving for the victory and in remembrance of the airmen who lost their lives in the battle.

Heads of the churches have also suggested that offerings at the services on Sunday, 17th September should be devoted to the Royal Air Force Benevolent Fund.



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# THE SPECIALISTS IN COMFORT ENGINEERING

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Throughout the British Aircraft Industry the name of Rumbold is associated with comfort, with attractive and durable schemes of decoration for aircraft from light aeroplanes to giant air liners and with the skilful utilisation of every cubic inch of space made available by the designer to the furnisher and stylist.

Rumbold has been responsible for the design, layout, decoration, furnishing and equipment of the passenger accommodation in most successful British civil aircraft during the past 16 years, including the Avro York, the Short Empire flying boats, all de Havilland models from the Puss Moth to the Flamingo, the Armstrong-Whitworth Ensigns, the Airspeed Couriers and Envoys, the Miles and the Percival ranges and scores of other types.

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# "The Royal Air Force Quarterly" completes Fifteen Years of Publication

THE First Number of THE ROYAL AIR FORCE
QUARTERLY appeared on 1st January, 1930.
Among the contributors to this first number
were:—

Air Vice-Marshal Sir Philip Game, G.B.E., K.C.B., D.S.O.

Squadron Leader R. Graham, D.S.O., D.S.C., D.F.C. (now Air Vice-Marshal).

Wing Commander A. G. R. Garrod, M.C., D.F.C. (now Air Marshal, K.C.B.).

Wing Commander T. L. Leigh-Mallory, D.S.O.

(now Acting Air Chief Marshal, K.C.B.).

Mr. C. L. M. Brown (now Group Captain

Deputy Director of Educational Services).
Group Captain L. W. B. Rees, V.C., O.B.E.,
M.C., A.F.C., A.D.C.

It was founded by the present Editor, with the fullest co-operation and help of the Air Ministry, with the object of "promoting and advancing Service aeronautics and aeronautics generally. It will be devoted to the interests of the Royal

Air Force and of the Air Forces of the Dominions, and is designed to encourage thought and discussion and the free expression of opinion."

An Air Ministry Weekly Order No. 516/1929 authorized officers and airmen to submit contributions direct to the Editor, who is responsible for obtaining Air Ministry approval of all contributions he accepted for publication. This order has remained undisturbed and the R.A.F. QUARTERLY still enjoys the fullest confidence of the Air Ministry in this and, we venture to say, in all other respects also.

We regret that under war-time restrictions contributions and subjects are very limited in their scope. Once these restrictions are removed we shall take steps to see that THE ROYAL AIR FORCE QUARTERLY immediately returns to its pre-war standard in quality, quantity and variety of its contents.

Our voluntary donations to the R.A.F. Benevolent Fund and other Service charities during the fifteen years total over £750.

# The Air Forces of The Dominions

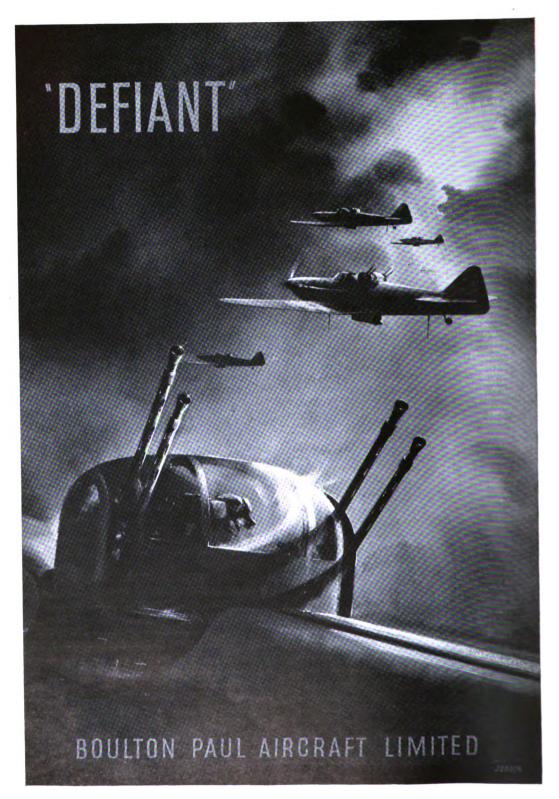
Continuing the series of articles on the air effort of the Dominions we follow up the two articles on the Royal Canadian and Australian Air Forces published in the preceding Number with an article on the Royal New Zealand Air Force. (Pages 181-190.)

A YOUNG Dominion and a comparatively small one, with a population of not more than 1,600,000, New Zealand has good reason to be proud of the fighting record of her sons. The story of Anzac in the first great war needs no retelling and her contributions to the Allied cause during the past five years have more than upheld the Anzac tradition.

Already, approximately 150,000 adult New Zealanders have joined the Armed Services, exclusive of the Home Guard and E.P.S. Units. Of this total the Royal New Zealand Air Force has a strength in excess of 40,000, and by the end of May, 1944, Dominion air personnel had won more than 750 awards.

The pre-war expansion programme initiated early in 1937 resulted in the R.N.Z.A.F. being able to embark without delay on the vastly increased commitments required under the Empire Air Training Scheme. Prior to the outbreak of

war in September, 1939, two new large operational stations and two flying training schools had been practically completed, and the training of air and ground personnel to meet the local expansion programme was well under way. The Government had further agreed, in the event of war, to train for the Royal Air Force approximately 1,300 air-crew personnel a year, and complete arrangements had been made accordingly. On the outbreak of war, the first act of the Government was to hand over to the United Kingdom the New Zealand "Wellington" bomber aircraft ordered under the expansion programme. These were on the point of being flown out to the Dominion by their New Zealand crews to form the first of their modern long-range bomber squadrons. These aircraft formed the nucleus of a heavy bomber squadron, manned largely by R.N.Z.A.F. air-crew personnel, which has given meritorious service in Great Britain



nore detailed reference to this is contained in he article.

### TRAINING

During the first two years of war practically the whole of the Air Force effort in New Zealand, with the exception of the operation of a few squadrons of obsolete Service aircraft used for seaward reconnaissance, was devoted to the maximum output of trained and semi-trained aircrew personnel for service overseas. The quota of trainees required under the Empire Air Training Scheme, which was many times greater than the pre-war undertaking, has been consistently exceeded and, furthermore, the capacity of the New Zealand training organizations has been such that, contrary to the original intention, at least forty per cent. of pilot personnel have been fully trained in the Dominion. The total number of R.N.Z.A.F. air-crew personnel trained since the outbreak of hostilities is now rapidly approaching five figures.

### ENTRY OF JAPAN INTO THE WAR

The threat to the territory of the Dominion created by the outbreak of war with Japan in December, 1941, grew more and more serious during the following six months with each advance by Japan into the island barrier to the north of New Zealand. The best available military and air forces were sent from the Dominion into Fiji, the key island in the South-west Pacific, to reinforce its slender garrison there. Every effort was made by all manner of improvizations to increase the offensive capacity of the training aircraft in the Dominion without reducing their utility in the primary role of training.

The position in New Zealand was, in fact, not dissimilar to that in Great Britain during the anxious months after the fall of France. New Zealand was faced with a home defence problem of unsurpassed difficulty, against an implacable enemy, with little more than the will to resist. The flower of New Zealand manhood, the Second New Zealand Expeditionary Force, and thousands of its trained airmen were fighting out the major issue on the opposite side of the world. It is a matter for pride amongst all New Zealanders that no effort was made in those dark months to meet the growing threat by the withdrawal of any portion of their military and air forces fighting with such distinction in Libya and over Europe.

Just as the R.N.Z.A.F. had a squadron overseas when war broke out in Europe, New Zealand again had air force personnel on the spot when Japan commenced hostilities. These personnel were the members of the R.N.Z.A.F. fighter squadron and a New Zealand aerodrome construction squadron, who were sent to Malaya shortly before that unfortunate campaign commenced. Equipped with American "Buffalo" aircraft, the fighter squadron was rather outmatched and certainly out-numbered by the Japanese, but fought on doggedly until the enemy advance compelled its evacuation. The New Zealand ground staff with the squadron, which remained to service an R.A.F. squadron, were among the last to leave Singapore, finally evacuating with the infiltrating Japanese only a few hundred yards away from the airfield. The Aerodrome Construction Unit made five landing strips in turn, and then had to demolish them as they kept moving southward only a step ahead of the Japanese.

### FROM DEFENCE TO OFFENCE

While the Japanese continued to drive south through New Guinea and the South Pacific, the activities of the R.N.Z.A.F. were designed primarily for the defence of the Dominion against invasion and for the protection of shipping. Without reducing its commitments under the Empire Air Training Scheme, the existing bomber-reconnaissance squadrons were strengthened, fighter and army co-operation squadrons were formed, radio-location units and the Observer Corps were established. It was found necessary to decentralize operational control of the increased number of squadrons and associated units by the formation of three groups, Northern, Central and Southern—which were coincident with the existing Army districts. Combined headquarters were established at the three groups, which included operations rooms for the control of bomber-reconnaissance squadrons, while fighter operations rooms with a full range of facilities for ground control were also established.

The United States naval victories at Midway and Coral Sea, and steady progress made by military and air forces in the Pacific islands in the second half of 1942, removed the threat to the security of the Dominion. The South Pacific was now a war zone in which the fortunes of New Zealand were intimately concerned and in which the Dominion intended to participate to the maximum possible extent. The improved strategical situation made it practicable to revise drastically the existing plans which had been based primarily on the local defence of the Dominion. There has been since early 1942 a steady increase in the number of New Zealand squadrons operating in the South Pacific zone. These squadrons are equipped with American types of operational aircraft and now comprise a number of bomberreconnaissance squadrons equipped with Venturas, fighter squadrons equipped with Warhawks and Corsairs, and flying-boat squadrons equipped with Catalinas.

New Zealand fighter pilots in the Pacific had accounted for approximately one hundred aircraft up to March of this year, with a ratio of loss in their favour of roughly one to five. With the falling off of enemy air opposition, Warhawks are now being used extensively as fighter-bombers. Dominion bombers have sunk one Japanese gunboat, with another probably destroyed, as well as having carried out numerous successful attacks against enemy barges, installations and shipping. Catalina flying-boat squadrons, apart from carrying out routine patrols and searches, have a total of approximately fifty air/sea rescues to their credit.

Ground staff and air-crew are now separated into different units for Pacific service. Flying units have a tour of duty of approximately three months in the forward area before being replaced while maintenance units have longer tours of duty.

# WOMEN'S AUXILIARY AIR FORCE

Serving in twenty-two different trades, some 3,600 women are enrolled in the Women's Auxiliary Air Force, both in New Zealand and in the Pacific. The conservation of manpower through the employment of W.A.A.Fs. has done much to alleviate the awkward position in which the Dominion has been placed through sending such a large proportion of its eligible population overseas while at the same time endeavouring to increase industrial production at home.

# AIR TRAINING CORPS

With recruiting for the R.N.Z.A.F. now reaching the inevitable point where the main source of new recruits is in the youth of the country, the Air Training Corps has grown in importance and is being carefully nurtured. The A.T.C. in May, 1944, had a strength of over 8,800 cadets and it is expected that this figure will soon reach 10,000. The value of this preliminary training has already become apparent from the progress of ex-A.T.C. cadets in air-crew and technical trades.

The story of the Royal New Zealand Air Force is the history of the Royal Air Force; in fact, when the operations of New Zealand squadrons in the Pacific are included it is nothing short of the history of the Allied air war. New Zealanders serve in every theatre of war, and it is difficult to find exploits of any magnitude in which some New Zealand airmen are not represented. Under such conditions of service, this young generation of New Zealand airmen is obtaining a unique experience.

# Spitfire Mitchell Memorial Fund

The R.A.F. recognize in the late R. F. Mitchell a figure of genius and self-sacrifice, but few who applauded him in the days of his Schnieder Cup triumphs can have realized what his ideas were going to mean in the preservation of our country. As Air Marshal Sir Ralph Sorley said at the inaugural luncheon for the Memorial Fund: "The Spitfire has retained its complete superiority for ten years, and remains superior to every other type, including the best that the Germans can do at the present time. That original Spitfire has been improved, but the design was so good that it has been subsequently increased 100 per cent. in power, 35 per cent. in speed, 80 per cent. in climb, and taken an increase of about 40 per cent. in all-over weight."

In his new book, "Men behind Victory." Donald Stokes has included a moving article on "R. J.," whom he calls "the most brilliant designer of aircraft the world has yet seen." He continues: "His were the creations which every nation, including the enemy, has followed in building the deadliest fighters for war; his, too. were the dreams for super-aircraft girdling a peaceful earth." A timely reminder, for one is apt to forget that Mitchell did a great deal besides his speed-planes and his Spitfires. He designed the "Southampton" class flying-boats which made a record mass flight from England to Australia. His son, Gordon, serves to-day in the Air/Sea Rescue Service, in which Mitchell's Walrus amphibian plays a major share. R.J. also planned a four-engined heavy bomber, and passed the completed drawings while fully realizing that he would not live to see them become fact—as they did eventually, though this design has not been available for war purposes as the prototype model was destroyed in a raid.

Mitchell was an exceptionally far-seeing practical man. He would have approved the plans of the Spitfire Mitchell Memorial Fund, for they are founded on these qualities. These plans include a Mitchell Youth Training Centre at Stoke-on-Trent, where he was born; the endowment of ten scholarships in aero engineering at University College, Southampton—the town where he worked; and, if the response is sufficiently generous, the provision of additional personal financial assistance in specially recommended instances. Everyone sending a donation is asked to include his signature on a separate sheet of paper, so that it may be included in the Book of Remembrance which will be kept at the Youth Centre and represent the tribute of gratitude from those who realize how much their freedom is linked with Mitchell's life of service. Subscriptions should be sent to the President, Ladv

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# Free 48 hours Leave for Flying-men

Lady Elibank's British Aviation Hospitality Fund makes it possible for over seventy operational air-crew men each week to spend fortyeight hours leave free of charge at good hotels within easy reach of their stations.

Lady Élibank started the British Aviation Hospitality Fund some years before the war to entertain foreign pilots and foreign Aero Club

representatives visiting this country.

When the war began she arranged for the pilots of one or two stations in Scotland to be issued with vouchers which they were able to exchange at hotels in Edinburgh for free board and lodging—the hotels sent the bills to the Fund, which paid them.

From that small beginning the scheme has grown, and to-day it offers this hospitality to the squadrons on some sixty-six selected stations in air defence of Great Britain, Bomber and Coastal Commands. It is officially recognized by the Air Ministry.

# 1939-1944

Five years of war have seen invention and development, in particular, surpass all expectations. Not one of the first-line aircraft models which formed the backbone of the Royal Air Force in 1939 remains in service to-day, though famous names carry on the great tradition in forms vastly more powerful and more deadly than their ancestors.

In 1939 the typical British single-seat fighter was a monoplane powered with the exceptionally heavy armament—at that date—of eight rifle-calibre machine-guns. Five years later the first-line fighter is armed with shell-firing cannon guns, 0.5-in. machine guns, while many carry additional rocket-projectors able to fire salvoes equivalent in power to a broadside of 6-inch naval guns. Moreover, the fighter to-day can carry individual bombs up to 1,000 lb. in weight.

In spite of the added war load, performance has climbed amazingly, largely due to the emergence of more powerful and more efficient engines. One famous single-seat fighter, at the cost of a 40 per cent. increase in all-up weight, attains level speed 35 per cent. faster than its 1939 ancestor, while its rate of climb is 80 per cent. better. Power in the engine has doubled.

When the war began heavy bombers of the

Royal Air Force could carry a bomb-load of 4,000 to 5,000 lb. Nowadays the four-engined giants can carry up to 18,000 lb. of bombs on a single mission, and many of them can house the huge 12,000-lb. bombs which have done so much to crush heavily defended enemy submanne pens and similar difficult targets. Effective radius of action has expanded nearly three-fold—from 600 miles to 1,500 miles.

Twin-engined fighters have displayed astonishing and unexpected versatility. They have been developed for service as night-fighters, as torpedo-planes, as photographic reconnaissance aircraft, as fighter-bombers—to mention only a few of numerous metamorphoses. They carry exceptionally heavy armament, yet achieve very high speeds. Like the single-engined British fighters, the swiftest representatives of this class now easily achieve true level speeds in the 400 to 450 m.p.h band, while far higher speeds are well within the range of the new British jet-propelled warplanes which are now in production.

New industries and revolutionary changes in design have profoundly affected equipment. Manufacture of gun-turrets, first developed by British technicians, has spread from a handful of skilled operatives in one or two factories to become the occupation of a specialized and widespread industry employing thousands of hands. Airscrews have advanced in size, efficiency and complexity. The two-bladed and three-bladed airscrews of 1939 are now supplemented by four-bladed and five-bladed airscrews, and by contra-rotating six-bladed units. They can be feathered to present the least possible head-resistance when an engine is stopped, and the pitch of the blades can be infinitely varied by the movement of tiny controls at the pilot's hand.

Undercarriages of yesterday are dwarfed by the mighty units required to support the giant bombers on the ground; in the larger systems individual light alloy forgings weighing up to 250 lb. are needed. Experiments are being pressed forward on the British invention of the caterpillar track undercarriage designed to spread the load of the still heavier bombing planes of the near future.

And so, in every sphere, British engineering genius is keeping the Royal Air Force and the Fleet Air Arm in the van of technical progress—from the wonders of radar, brought to technical success and quantity production by British engineers alone, to refinement in design of the smallest nuts and bolts.

British success in the maintenance and expansion of aircraft production, despite bombing. "black-out," dispersal of plant and many other

difficulties, ranks at least equal with British technical achievement.

The British production record is once again superior to the enemy's. In the last year for which figures have been released, 27,273 new British aircraft and 60,000 engines were built.

This total of new aircraft reveals part only of the nation's real production achievement. What matters to the fighting Services is the number of aircraft delivered to them in fighting trim. Supplementing the completely new aircraft, no fewer than 18,000 aircraft were repaired and returned in new condition to service during the year. Spares production, essential to keep hard-worked war-planes flying, is equivalent to between 50 and 60 per cent. of the output of complete aircraft.

Hence, the true productive effort of the British aircraft industry in the year may be fairly estimated as equivalent to some 60,000 aircraft, or approximately 5,000 a month. That effort was the work of nearly two million operatives, employed in factories controlled by more than 15,000 separate companies drawn from every branch of engineering.

# Award of Victoria Cross

PILOT OFFICER CYRIL JOE BARTON (168669), R.A.F.V.R., No. 578 Squadron. (Deceased.)

On the night of 30th March, 1944, Pilot Officer Barton was captain and pilot of a Halifax aircraft detailed to attack Nuremberg. When some seventy miles short of the target, the aircraft was attacked by a Junkers 88. The first burst of fire from the enemy made the intercommunication system useless. One engine was damaged when a Messerschmitt 210 joined in the fight. The bomber's machine guns were out of action and the gunners were unable to return the fire.

Fighters continued to attack the aircraft as it approached the target area and, in the confusion caused by the failure of the communications system at the height of the battle, a signal was misinterpreted and the navigator, air bomber and wireless operator left the aircraft by parachute

Pilot Officer Barton faced a situation of dire peril. His aircraft was damaged, his navigational team had gone and he could not communicate with the remainder of the crew. If he continued his mission he would be at the mercy of hostile fighters when silhouetted against the fires in the target area, and if he survived he would have to make a four-and-a-half hours' journey home on three engines across heavily defended territory. Determined to press home his attack at all costs, he flew on and, reaching the target, released the bombs himself.

As Pilot Officer Barton turned for home the propeller of the damaged engine, which was vibrating badly, flew off. It was also discovered that two of the petrol tanks had suffered damage and were leaking. Pilot Officer Barton held to his course and, without navigational aids and in spite of strong head winds, successfully avoided the most dangerous defence areas on his route. Eventually he crossed the English coast only ninety miles north of his base.

By this time the petrol supply was nearly exhausted. Before a suitable landing place could be found the port engines stopped. The aircraft was now too low to be abandoned successfully. Pilot Officer Barton therefore ordered the three remaining members of his crew to take up their crash stations. Then, with only one engine working, he made a gallant attempt to land clear of the houses over which he was flying. The aircraft finally crashed and Pilot Officer Barton lost his life, but his three comrades survived.

Pilot Officer Barton had previously taken part in four attacks on Berlin and fourteen other operational missions. On one of these, two members of his crew were wounded during a determined effort to locate the target despite appalling weather conditions. In gallantly completing his last mission in the face of almost impossible odds, this officer displayed unsurpassed courage and devotion to duty.

# Duke's Tribute to R.A.A.F.

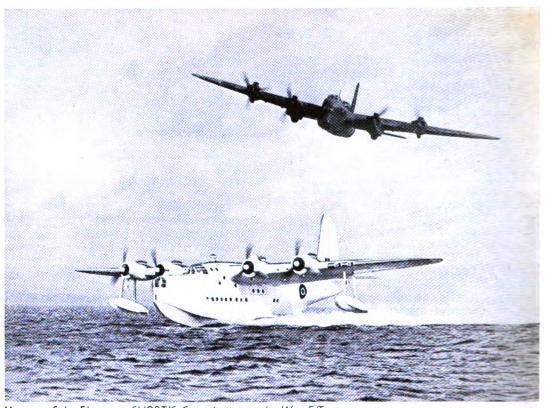
After inspecting several R.A.A.F. squadrons serving in Great Britain with the Royal Air Force, Air Marshal H.R.H. The Duke of Gloucester, Governor-General Designate of the Commonwealth of Australia, has sent the following tribute to the officers and men of the Royal Australian Air Force:—

"During the course of frequent visits to air stations in England, and during my tour in the Middle East, I have had the opportunity of meeting a great number of Royal Australian Air Force officers and men, and of obtaining first-hand information of their wonderful contribution to the war effort of the United Nations.

"When I take up my duties as Governor-General of the Commonwealth it will be one of my most pleasant duties to visit the Royal Australian Air Force who are operating in the South-West Pacific war zone, where they have done, and are still doing, such splendid work.

"I take this opportunity of sending all members of the R.A.A.F., wherever they may be serving, my very best wishes for the future.

" (Signed) HENRY."



Masters of the Elements, SHORT'S Contribution to the War Effort

SHORT AND HARLAND PHOTOGRAPH

The Stirling Bomber and the Sunderland Flying Boat Short Brothers England

THE OLDEST ESTABLISHED AIRCRAFT COMPANY IN THE WORLD

# New Zealanders with The R.A.F.\*

"New Zealand's association with the Royal Air Force extends back to the pioneer days, and it is a matter of pride that more than 500 New Zealanders were serving with short service commissions in the R.A.F. at the outbreak of war. New Zealanders figured in the first days of the war, and since those days a steadily increasing stream of personnel from the Royal New Zealand Air Force has been arriving in the United Kingdom. We are proud that such a large proportion of the R.N.Z.A.F. is serving with the Royal Air Force, and proud, too, that these men are so highly regarded by their comrades. To the men from the Motherland, I give the thanks of New Zealanders for the splendid spirit of comradeship shown to our men and trust this spirit will be just as fully maintained in the days of peace.—Air Vice-Marshal L. M. Isitt, C.B.E., R.N.Z.A.F., Chief of the Air Staff, Royal New Zealand Air Force.

HE story of the part played by New Zealand airmen in the European theatre, dating back as it does to the Battle of France and the Battle of Britain, is naturally the one which has fired the imagination and pride of all New Zealanders.

The herioc deeds of this mere handful of pioneers, most of whom, at considerable selfsacrifice and with great tenacity of purpose, had succeeded in working their way from New Zealand to England and enlisting in the R.A.F., will always rank high amongst the valorous records of New Zealand's fighting sons. Remembering especially the odds against which they battled in those early days of the war, and the fact that humanity's cause was at stake, they serve as shining examples to the many who were to follow in their steps, and one at least, Cobber Kain, who became an international hero must have influenced thousands of venturesome youths from every quarter of the globe in adopting the air as their particular sphere.

The rapid expansion of the R.N.Z.A.F. already referred to, and the marked preference shown by New Zealanders for this branch of service, is no doubt a reflection of the inspiring activities of Kain and his contemporaries.

Closely allied with the service records of these early "birds" were the New Zealanders, who had been previously selected in New Zealand from thousands of applicants for short service commissions in England, and who were actually undergoing training at the outbreak of the war. A brief summary of several of the better-known pilots appears later on, and whilst every tribute must be paid to their qualities of manhood and disregard for personal safety, it must not be forgotten that the basic training which equipped them so well was received from the R.A.F., with whom they were associated in many of their achievements. No reference in these pages would

be fair or complete without paying due honour to all that these boys owed to the parent body.

Unfortunately, but perhaps quite understandably, the impression still exists that the activities of all New Zealand airmen in the United Kingdom centre about the six token squadrons. It is true that in the main these squadrons are manned by New Zealanders, but the grand total of their personnel is well under 10 per cent. of those engaged in operational service in the European zone.

Naturally, however, each squadron, associated as it is with the name of the Dominion, is proud of its record of meritorious service, which unfortunately for service reasons will not be fully made known until the conclusion of hostilities. Any historical record of the Royal New Zealand Air Force, however brief, must include reference to these squadrons, the fine work of their aircrews and ground crews and the names of the New Zealanders associated with them who have performed with great distinction.

With regard to the squadrons themselves, . first and foremost must be considered a reference to the operational record of No. 75 New Zealand Bomber Squadron, yet, ironical as it must appear now, its first operation was connected with the dropping of "bomphlets" over specified areas of Germany, a propagandist rather than an offensive mission, yet one not entirely divorced from the perils and excitement of the latter. Much has happened since that memorable day in March, 1940, and the fame of No. 75 Squadron is as highly regarded by Bomber Command as it is by New Zealand itself. In the European war zone it has faithfully carried out Mr. Churchill's undertaking that the enemy would be attacked wherever he was to be found, for hundreds of targets have been pounded in Germany itself, in occupied Europe and in Italy, and the thousands of tons of bombs dropped must be reckoned a grand contribution to the total effort.

Not only New Zealanders, but also British,

<sup>\*</sup>With acknowledgments to the book by Alan Mitchell, New Zealand Associated Press, to be published shortly.

Australians, Canadians and Indians have been associated with the deeds of No. 75 Squadron, and they added lustre to its reputation. To regard this as the most notable of all New Zealand squadrons is no exaggeration, for it has an unsurpassed record among them of operations and targets attacked, and a sad corollary is the fact that its death roll of New Zealanders is the highest.

Amongst the long list of honours, pride of place must go to a Victoria Cross awarded to Sergeant J. A. Ward, of Wanganui, whose life was unfortunately ended two months after the operation which won him the supreme decoration. The story of his heroic deed leaves no doubt that it ranks with the greatest individual feats of the war.

Some few weeks before, he had been second pilot to Squadron Leader R. P. Widdowson, a Canadian, of a Wellington bomber, returning from a bombing trip over Munster. Suddenly their thoughts of home and a successful sortie were rudely shattered by a Messerschmitt 110 which succeeded in getting several bursts of cannon shell into the bomber. With one engine badly damaged, the hydraulic system useless, bomb doors fallen open and the wireless and inter-communication sets unworkable, smoke and fumes began to fill the cockpit. Amongst all this confusion, however, the rear gunner, Sergeant Box of Auckland, coolly trained his guns on the fighter, and as it turned away a few yards in front of his sight, he squeezed the button and succeeded in shooting the German down. The Wellington flew on, but due to a broken petrol pipe a fire broke out in the starboard motor. The skipper instructed the crew to don their parachutes preparatory to jumping, at the same time saying to Ward that they were heading along the coast and asking him if he could put out the fire. Ward tried with an axe to cut a hole through the fabric of the plane to get at the seat of the fire, and then grabbing a cockpit cover indicated that he would hop out of the plane and have a go at the fire with it. At first he refused to take his parachute, but later put it on, and hampered by this and his flying suit began to crawl out. Getting what foothold he could from holes kicked in the fuselage, he edged his way to the seat of the fire against a ninety-mile-an-hour gale. The crew watched him, seemingly for an eternity, whilst again and again he was flung back against the side of the aircraft. By some miracle he managed to retain his position at last and edged the cover into the gaping hole towards the flame. He succeeded in holding it there until the slipstream tore it from his hands and it was gone. Ages seemed to pass before, with help from inside, he was able to regain the aircraft's cabin. but the flames were now under control and there was little danger of their spreading, and they eventually went out.

There is no doubt but that for his action the safety of all the aircraft's crew would have been

imperilled.

Some two months later he went out on a raid to Hamburg as the captain of a Wellington aircraft and was shot down. Three of the crew, including Ward, were killed, the remainder taken prisoner.

The squadron's first Commanding Officer was Squadron Leader M. W. Buckley, M.B.E. (now an Air Commodore commanding a Pacific Island group), who was actively associated with its formation. The New Zealand Government had purchased a number of Wellingtons, and the crews of these were in August, 1939, under training for the long flight to New Zealand. With the outbreak of war, however, these aircraft and their New Zealand crews were immediately placed at the service of the British Government, where they were more urgently required for service against Germany. Squadron Leader Buckley was to have commanded these six Wellingtons outward bound to New Zealand. By virtue of his policy and perseverance in keeping his pilots together as a New Zealand flight must go the honour of having laid the foundation stone of No. 75 Squadron. As a Commanding Officer he earned the respect, admiration and deep affection of his squadron. Space does not permit of more than a brief mention of the twelve pilots selected to undertake the flight. All except Collins, who became the squadron's first casualty and was thus denied the opportunity, won the D.F.C., and Squadron Leader Buckley was mentioned in despatches. Four more were to make the supreme sacrifice: Freeman, when he was wing commander, D.S.O., D.F.C. and bar: W. M. C. Williams, when a squadron leader in New Zealand, and N. Williams and Coleman in operations over Germany. Squadron Leader F. J. Lucas, of Balclutha, came back to No. 75 for his second tour as flight commander, and won a bar to his D.F.C. He is now back in the U.K., a flight commander with a squadron of Mosquitoes, after a period of participation in the Pacific War. Kay, Adams and Breckon, all with distinguished records, returned to New Zealand.

Since that time the squadron's contribution to Bomber Command's all-out effort has grown apace and the stories of operational sorties and individual exploits have become legion. Space forbids of more than a passing reference here, although full justice will be done later in a more detailed work.

However, this short chapter on No. 75 Squadon cannot be terminated without mention of its ssociation with Air Commodore E. G. Olson, .S.O., of New Plymouth, at present Air Officer ommanding New Zealand Headquarters in ondon. This experienced officer, then a wing ommander, took over the command of the quadron from Wing Commander R. Sawreyookson, D.S.O., D.F.C., an Englishman with a istinguished record, who was killed during an ttack on Cologne. Olson had served on a shortervice commission in the R.A.F. in 1925-29, nd saw service with his squadron in Egypt and ndia. On his return to New Zealand he became n instructor at Wigram and Taieri, becoming Chief Instructor on the former station shortly efore the outbreak of war. From the New Zeaand viewpoint Olson's appointment was ideal, nany of his squadron members knowing him personally. He had that uncommon knack of beng able to mix freely with everyone in the lighter as well as the more serious side of the squadron's activities without loss of prestige. He was held n very high regard by the squadron during his command, and following a magnificent record by No. 75 during the summer of 1942, now promoted to group captain, he was posted to take over the command of R.A.F. Station, Oakington, where he was later awarded the D.S.O.

The other New Zealand Bomber Squadron was No. 487. Equipped at the start with Venturas, No. 487 carried out its first operation in December, 1942, taking part in the low-level attack on Eindhoven at house-top level, losing in the process its first Commanding Officer, Wing Commander F. C. Seavill, of Hamilton, New Zealand. This raid had about it an "Australasian" savour, as an Australian Ventura Squadron took off with No. 487 Squadron, and the combined operation was a great success. The main target was the Phillip's Radio Works and factories, and afterwards, in the words of one of the New Zealand officers participating, Squadron Leader Wheeler, "It was the most magnificent bombing I have ever seen."

Unhappily many of the pioneers have now passed on. Among those killed figure the names of Squadron Leader B. Wheeler, D.F.C., of Marton, Flying Officer G. W. Brewer, D.F.C., of Papatotoe, and Pilot Officer S. B. Perryman, of Christchurch, Squadron Leader L. H. Trent, of Nelson became a prisoner of war.

Wheeler, one of the squadron's flight commanders had the unique distinction of being a New Zealander attached to the R.C.A.F. A ranch owner in South America when war commenced, he threw up his farm to enlist in Canada. Prior to joining the squadron he had taken part in

nine daylight raids in Blenheims, during which he sank two ships and later made twenty daylight trips in Bostons. On the morning of the Dieppe raid, which will always rank high in Canada's war effort, he laid a smoke screen over the beaches. On his second tour he was shot down over Cherbourg when a member of a Mitchell Squadron.

Trent's name is associated with several historic attacks, which in these early days with Germany's air superiority were the acme of hazardous undertaking. He twice secured photographs of the Siegfreid Line, and made other photographic reconnaissances over Germany. December, 1939, he returned to England and converted to Blenheims. In one of these aircraft he took part later in the famous attack on the Maastrich bridge when the German hordes were invading Holland. On this action half the attacking aircraft were destroyed. He later took part in the air cover for the Dunkirk evacuation, and at the time of his joining up with No. 487 was one of the few survivors who had originally landed in France before the declaration of war.

Brewer was one of the few who won the D.F.C. on his first operation.

The squadron later changed over from low to high level attack with fighter escort directed against the marshalling yards of France, and although Spitfire cover secured them largely against fighter attack, Flak took its inevitable toll.

In the early months of 1943 the squadron had the worst set-back to its career, and from the point of view of personnel was never the same again. The operation was a "special" over Amsterdam. Before reaching the target the squadron ran into a swarm of F.W. 190s, which caused havoc amongst the fighter escort and then began on the bombers. Out of eleven aircraft only one returned to base, and forty of the crews were that day posted "missing," although fortunately some were later reported prisoners of war. Perryman was amongst the many great New Zealanders lost that day.

However, with the influx of new personnel, the squadron's activities were shortly resumed and the old fighting spirit restored. In January, 1944, the squadron was re-equipped with Mosquitoes and its first operations with these were against military targets in France. In the light of recent happenings and the information now disclosed, there is no doubt that these and subsequent efforts were directed against the flying-bomb bases there.

This conversion almost synchronized with a change of command. Wing Commander A. G. Wilson, D.F.C., an Englishman with a fine

record, was succeeded by a New Zealander, Wing Commander I. S. Smith, D.F.C. and bar, of Auckland, distinguished by a meteoric rise from Pilot Officer to Wing Commander in the short space of eleven months. Smith arrived in Britain in August, 1939, and flew with a Hurricane Squadron in the Battle of Britain. The laurels he has already won as one of the leading night fighters of Britain fit him to lead a squadron with such a great record.

The activities of No. 489 Squadron centre around an entirely different sphere of operations, yet its record of enemy shipping sunk with their valuable, and in many cases irreplaceable, cargoes must have made a vulnerable dent in Hitler's armour.

No. 489 was first established in 1941 under Wing Commander J. A. S. Brown, an Englishman with wide experience of flying-boats, and with him at the time as flight commanders were two other Englishmen, as few New Zealanders in the U.K. in those early days had the necessary experience in this type of craft and warfare. It was originally intended to equip the squadron with Beauforts, and training actually began on these aircraft, but the situation in the Mediterranean necessitated a transfer of these aircraft to attack the enemy shipping lines there, so Hampdens were substituted.

By April, 1942, the squadron, now with over three-score New Zealanders on its strength, moved from Scotland to the south of England and hopped into the fray on anti-submarine patrols around the south-west coast of France and in the Atlantic.

An early encounter between a Hampden and two F.W. 190s resulted in the probable loss of one enemy plane. Flight Lieutenant R. G. Hartshorn, of Auckland, was the pilot. In this battle the English rear-gunner, Pilot Officer S. J. Jordan, put up a magnificent performance and won the squadron's first D.F.C.

Some month's later the squadron moved back again to Scotland, this time to the far north, but in place of its former prey, the wily U-boat, it was now charged with the important but highly dangerous task of harrowing the enemy's shipping in the North Sea.

It was not until September, 1942, that the squadron tasted its first blood. The attack was directed against two large ships off the south of Norway, well protected by flak ships and under cover of shore batteries. Two aircraft went in together and released their torpedoes simultaneously. The crews had the satisfaction of seeing both register on the larger vessel. The second ship was attacked and fire broke out in the after part.

Many kills followed this initial success, so that by November, 1943, the total record of shipping destroyed amounted to 36,000 tons, 29,000 tons "probable" and 45,000 tons damaged.

Prominent amongst the New Zealanders taking part were Flying Officer J. J. Richardson (now a prisoner of war), Pilot Officers C. J. Fresney, Moynahan and Pettit, and Warrant Officer R. C. Dunn. Many of the pilots who have distinguished themselves with No. 489 have wen decorations. D.F.Cs. have been awarded to Squadron Leader Evans, Flying Officers Richardson, Mottram and Dubbury, and Warrani Officer Strain.

Wing Commander J. S. Dinsdale, D.S.O. D.F.C., of TeKuiti, who had been earlier attached for a brief spell to No. 489, returned in August, 1943, to take over command, succeeding an Englishman, Wing Commander V. C. Darling. His wide experience on torpedo bombers ably fitted him for the post. In the earlier stages of the war he had carried out many patrols in the North Sea and in the Channel around the Dutch coast; he had also taken part in mine-laying operations in the Norwegian flords. One of the latter led to the undoing of the notorious hellship, the Altmark, which fell a victim to the British Navy after she had struck a mine and grounded. He was also prominent in the attack on the Scharnhorst, Gneisenau and Prinz Eugen during their dash up the Channel from Brest where they had so long been bottled up.

Shortly after Dinsdale returned the squadron converted to Beaufighters, which necessitated the splitting up of the Hampden crews. Success with the new aircraft was however immediate and many damaging attacks were to follow.

The invasion of Normandy was to see a temporary change in the squadron's activities. In place of the enemy's convoys, its instructions were now to bomb their small armed craft, the "E" and "R" boats, which were a constant threat to the Allied invasion fleet.

By the end of June, 1944, scarcely three years since its formation, No. 489 Squadron's total of enemy shipping sunk had increased to over 65,000 tons, with a further 35,500 probably sunk and thirty-two armed trawlers and merchant ships shot up.

No. 485 Spitfire Squadron is associated with the names of some of the greatest of New Zealand's fighter aces, whose careers and records compare with the best in any service. More than a brief sketch of each is impossible here, but when the history of the air war is written theirs will be honoured places. Group Captain P. G. Jameson, D.S.O., D.F.C. and bar, Wing Commander C. Gray, D.S.O., D.F.C. and

o bars, Wing Commander A. Deere, D.S.O., .F.C. and bar, American D.F.C., and Wing ornmander Crawford Compton, D.S.O., D.F.C. id bar, have all fought with No. 485, and the llowing have grown up with the squadron: ing Commander E. P. ("Hawk Eye") Wells, .S.O., D.F.C. and bar, of Cambridge, Wing ornmander Crawford Compton, already menoned, and Wing Commander R. J. C. Grant, .F.C. and bar, D.F.M. Wing Commander ohnnie Checketts, D.S.O., D.F.C., served with o. 485 as a pilot officer and later fittingly ssumed command. Squadron Leader E. D. lackie, D.F.C. and bar, graduated from the quadron as a flying officer and left for Tunisia 1 1943, where out of his total of sixteen kills e shot down fifteen.

There is little doubt that of all the New Zeaand squadrons No. 485 occupies the warmest pot in its country's heart; maybe because its bersonnel throughout have been substantially New Zealanders—probably because the home olk have entered into the spirit of competition between its fighter aces and those of other counries in the mounting total of their kills. The fact, however, remains that the Dominion was inspired to raise a subscription fund to purchase Spitfires for it, these being named after different provinces in New Zealand, which contributed towards the money eventually subscribed.

Starting its operational career in the spring of 1941, shortly after the Battle of Britain, the squadron was fortunate in having as its first commanding officer Squadron Leader M. W. D. Knight, of Dannevirke, one of the many who worked their passage to England before the war

to join the R.A.F.

Credited with the squadron's first kill, a Ju. 88, in June, 1941, Knight was an excellent instructor, and the famous Flying Officer E. J. (Cobber) Kain, D.F.C., was one of his early

pupils.

From the start as a pilot officer Wells became prominent with the squadron, winning its first D.F.C., and his career was followed back in New Zealand with intense and increasing interest. His rapidly growing bag of kills proved "Hawk-Eye" to be in the very front rank of fighter pilots. His promotion from pilot officer to wing commander at the age of 25, and in the space of little over a year, was a fitting reward. At the conclusion of his tour, when he was awarded the D.S.O., Wells had eleven enemy aircraft to his credit.

The first year of No. 485's operational history is full of stories of dog-fights against great odds. Space forbids a detailed account of these here. Yet typically enough it was in circumstances

such as these that these pilots revelled, and the successful outcome of many can only be described as miraculous. Severe losses were sustained, however, Knight was taken prisoner, following a forced landing in September, 1941, and Stewart, a promising pilot, failed to return from another raid. Shortly afterwards J. Strang, of Invercargill, a pilot officer who had had a previous narrow escape, was lost when his Spitfire got out of control and dived into the sea.

Compton, promoted flight commander, had by the middle of October, 1941, shot down two aircraft. This officer was subsequently to have a

brilliant career.

Mention has already been made of the action when the German battleships slipped out of Brest. This was to provide No. 485 the opportunity for national fame. The squadron, led by Wells, took off to escort the bombers detailed to attack. With him were Compton, Checketts, Grant, Francis and Clouston, to mention some of the better-known names. In the early stages of the action the New Zealanders were engaged with formations of Messerschmitts, and arriving over the German ships later on, dozens of F.W. 190s put in an appearance. The action which followed beggars description. Francis bagged one early in the piece. Grant and Sergeant Rae selected one more each, and Grant saw his go down after a six-seconds' burst. Rae had the satisfaction of seeing bits fly off the tail of his before he had to break off the action through lack of ammunition. Wells and his flight flew down the line between the battleships and the escorting destroyers, looking for any trouble that was going. The German fighters failed to accept the challenge, however, and in a last effort, with fuel running short, Wells decided to have a shot at an escorting E-boat. This was left in a sinking condition. Calling it a day, the squadron returned to base, adding to its score board four aircraft definitely destroyed, two probables and an Eboat sunk or badly damaged. The squadron's effort on this day received special mention in the

On being promoted wing commander, Wells was posted to lead the wing to which No. 485 was attached, and Grant, whose promotion was equally as rapid, succeeded him as C.O. Grant's bag at this stage was six, and subsequent events proved him a very capable leader.

Compton was a fifty-fifty choice with Grant as squadron commander, and at that stage had five and a half victims to his credit, but a crash just previously had incapacitated him with a broken wrist, and so his chance went awry.

Grant's reign will always be remembered by the Dieppe raid in which the squadron participated, and the party which the New Zealanders gave to the ground crew at the conclusion to commemorate their magnificent effort.

Later the squadron was ordered to Ireland and was associated with the landing in French North Africa, which marked the prelude to Rommel's defeat.

No. 485 afterwards came back to the south of England, and a month later (in February, 1943) found itself in action over Abbeville, engaged in as fierce a combat as any that had fallen to its lot a year before. As usual, it was heavily outnumbered, over fifty Messerschmitts and Focke Wulfs being apparently bent on its destruction.

In the heat of the battle, Grant, despite all he could do, saw his brother Ian gliding in his Spitfire out of control. He never heard of him again. This was the squadron leader's last sortie with No. 485, and with 150 operations to his credit he was posted to Canada, where he did a routine of lectures to training units. On his return his promotion to wing commander followed and he led a wing of Mustangs on many operations.

His death in February, 1944, as a result of an accident, was a shock not only to his old squadron, but to all New Zealanders both in this country and the Dominion and his many friends in Canada. He took off on an operational flight, but his engine cut at 2,500 feet and, ordering the wing to carry on, he endeavoured to regain his base. Eventually, however, he was forced to resort to his parachute. He had no height and it appears that his chute opened when he struck the ground. At the time of his death Grant had eight enemy aircraft to his credit and was in the very foremost rank of New Zealand fighter pilots.

He was succeeded by Baker, who had two years' service with the squadron. On his rest period becoming due—this synchronizing with the squadron's re-equipment with Spitfires IXB in June, 1943—Squadron Leader John Checketts took over command of the squadron. Checketts at this time was 32 years of age, and in the normal course a little old for a fighter pilot. However, his subsequent record showed him to be both a leader and a fighter. From May, 1943, when he shot down his first aircraft, until September of that year when he was himself a victim, he had eleven kills to his credit, and the squadron's score had been raised to sixty-five.

Deere, who incidentally had recommended Checketts for the squadron post, was in command of the wing when the squadron became attached to it in June, and during July and August it had more enemy aircraft to its credit than any other squadron in 11 Group.

In August, in a notable sortie lasting little more than a minute, the squadron registered a record score for one operation, shooting down six Messerschmitts and damaging another without loss.

Flying Officer Rae, after bagging ten enemy aircraft over France and Malta, was unfortunately obliged to make a forced landing on enemy occupied territory when he was due to be promoted to flight lieutenant the following day. He was taken prisoner of war. He was awarded a bar to his D.F.C.

Early in September. Checketts was posted "missing." Engaged in his third operation for the day, he sighted a formation of Focke Wulfs flying some two miles away. He succeeded in shooting one down and followed another in a vertical dive. Checketts continued firing until his ammunition was exhausted, and then attempted the flight towards home. His craft was, however. sighted by enemy aircraft, which dived into the attack. The squadron leader's aircraft was quickly hit and his aircraft on fire, and Checketts baled out. To everyone's astonishment, some few weeks later, he was back in England, but the story of his escape and subsequent adventures cannot be told until after the war. The D.S.O. conferred shortly after his return to England was a fitting conclusion to a great record.

About this time No. 485 severed its connection with Deere and Biggin Hill and transferred to a wing led by Compton. This must have been a great milestone in his career, for Compton had already served with the squadron as a sergeant-pilot and flight commander, and was now its wing leader. He continued as such until November, 1943, when the squadron was posted north to Scotland for its rest period.

Hume, who had succeeded Checketts as squadron commander, was now succeeded by Squadron Leader John Niven, the first "foreigner" to command the squadron. He became, however, a popular leader and prior to the invasion of Normandy led No. 485 on many bombing attacks on railway centres and communications in France. His flight commanders were Lindsay Black, at one time noted in athletic circles in New Zealand and a veteran of the squadron, and Flight Lieutenant K. Lee, of Auckland, who had been with No. 485 for several months.

It was perhaps fitting that the squadron should have participated in the activities on "D" Day. 6th June, 1944. Detailed to patrolling over the invasion beaches, they were one of the first wings to arrive over the Allied fleet.

Within a week from taking over this patrol duty they had accounted for nine enemy aircraft. Flying Officer J. A. Houlton, of Christchurch, a

pilot who had previously fought in Malta, suceeded in getting his third for the week's opera-D "Day, and raising its total to seventy-five enemy aircraft destroyed.

The squadron will always be remembered as the first New Zealand squadron to be based in

France.

No. 486 Fighter Squadron came into being March, 1942, equipped with Hurricanes. Although during the next few months it was to earn a high reputation for efficiency and versatility, as apart from its scheduled duties, it participated in shooting up shipping, bombing German airfields in France, engaged in Intruder work and also at times did valuable air/sea rescue work.

Under the command of an Englishman, Squadron Leader C. L. C. Roberts, and assisted by two well-known flight commanders, Flight Lieutenant J. Clouston, of Wellington, the Battle of Britain pilot, and Flight Lieutenant H. N. Sweetman, of Auckland (previously a member of the New Zealand Spitfire Squadron), it was well equipped for the developments which came later, although for some time its location in Lincolnshire was well off the beaten track of the German raiders who visited this country.

There is little doubt that Sweetman secured the first kill for the squadron, although at the time another squadron was operating in the same vicinity and also claimed to have shot down the German, a Do. 217, so the squadron could only show "\frac{1}{2}."

Shortly after this the squadron was re-equipped with Typhoons and moved to the South Coast. After a period of training it resumed operations in October. This month marked a period when the German sneak raiders, equipped with fast aircraft, skimmed in on indiscriminate bombing attacks and zoomed away back to their lairs in France.

The first kill with the new aircraft was shared when two of the squadron's pilots, Sames and Thomas, who were on patrol, got on the track of a F.W. 190 which had dropped a bomb, and joined in a chase which lasted for many miles. The Typhoons' greater speed enabled them to get into position and the enemy was shot down into the sea.

In December they lost a popular and very efficient member of the squadron, Flying Officer Leslie Weir, whose aircraft dived into the sea out of control. The reason will always remain a mystery. Weir was well known to many friends in Wellington and the Coast, as in civilian life he was an engineer operating on craft plying between Wellington and the Coast.

The squadron pilots were now rapidly winning their spurs. In six days it had seven sneak raiders to its credit. Two of the kills (Me. 109s) went to Murphy and Taylor-Cannon, and the day following this Thomas was credited with a Do. 217.

On 19th December, Sweetman secured a probable, and Sames, his companion on this patrol, secured a definite kill, both F.W. 190s. A few days later Flight Lieutenant A. E. Umbers, now famed for his successes with the flying-bomb attacks on this country (he is credited with shooting down the first two), came into the picture with Sergeant C. M. Gall, of Rangiriri, Auckland. This time a Do. 217E failed to report back to its base.

No. 486 was due for a further success on Christmas Eve when, during a patrol, Thomas and Murphy sighted two Me. 109Fs. Murphy had the pleasure of seeing his disintegrate with the first burst, but Thomas, on the tail of his for thirty miles, saw it seek cloud cover with smoke trailing behind. His own engine commenced to cause trouble and he was obliged at this interesting stage to break off the engagement. Wreckage found later confirmed his kill however.

By March, 1943, the squadron's score had jumped to 111 with the assistance of a mixed bag—Taylor-Cannon with another Me. 109 and Murphy with a Ju. 88. Tyerman added a F.W. 190.

In the following month Squadron Leader Roberts, whose early intensive training work on the squadron had brought such great results, was succeeded in command by Squadron Leader "Des" Scott, one of the great New Zealand fighter-pilots of this war. As an indication of his worth he rose from flight sergeant to squadron leader in nine months.

Scott had put in a lot of work on night intruders and already had five enemy aircraft to his credit. One of his kills must have given him some sardonic satisfaction: the shooting down of a Do. 217 over its own airfield as it came in to land.

Already decorated with the D.F.C. and bar, his arrival was to see a complete change in the squadron's activities. The Germans had apparently by this time come to realize that their sneakraider tactics were a costly venture, and it was now necessary for patrols to seek them out over their own territory.

One of the raids was typical of the squadron's activities. With a first-class experienced team, including the well-known names of Sweetman, Umbers, Sames, together with McCaw, Murphy, Gall, Fittall and Preston, Scott took his Typhoons over Northern France as a protective cover to fighter bombers on an attack against an aerodrome there. Having put this out of commission the New Zealanders set forth for home on the look-out for trouble. They made a holocaust of some oil-storage tanks at Le Havre, and in the Channel made a successful attack against heavy flak on minesweepers and an armed trawler.

Murphy, who had by this time raised his score to four enemy aircraft, was eventually awarded the D.F.C., this being the first for the squadron.

Historic place names now connected with the present invasion of France became very happy hunting-grounds for the squadron. In August, 1943, Scott was awarded the D.S.O.

By September, 1943, the squadron had a great reputation for shooting up enemy shipping off the French coast, and in these attacks had put out of commission upwards of fifty German ships, ranging from the small "E" and "R" boats to armed merchantmen. The scoreboard for aircraft shot down showed 21½.

Scott's promotion to Wing Commander came at the end of September, when he was posted to lead a Typhoon wing on the same unit as No. 486. His successor was Ian Waddy, a popular appointment as he had served with the squadron from flight sergeant upwards. His new flight commanders were Murphy and A. H. Smith.

The squadron's reputation in Fighter Command was second to none amongst the Typhoon squadrons in England, and now sickening of the fruitless pastime of chasing Huns with no appetite for battle they became practically full-time operative as fighter-bombers.

Waddy, with his tour of operations completed, was succeeded by Squadron Leader J. H. Iremonger, an Englishman, whose capacity for leadership and invincible spirit commended itself to the New Zealanders. Following the change-over the squadron took part in many successful long-range operations over France.

Scott had by this time been promoted to the command of an airfield in another part of England preparatory to the invasion, and it was not long before he added an O.B.E. to his decorations. This award was for the gallant part he played in rescuing a pilot from an aircraft which had crashed and become enveloped in flames.

No. 486 were now re-equipped with the Tempest, one of the latest "jobs" in Fighter Command, and the success of their operations with these against railway communications in France are the best testimony to its efficiency.

Detailed for special work in counteracting Hitler's secret weapon, the fly-bomb, the squadron, with its new and extremely fast aircraft, was successful from the start. All that can be said now in this connection is that the squadron is fully living up to its motto "Hiwa hau maka," the

Maori for "Beware of the Wild Winds"—a happy reference to the type of aircraft it has been associated with.

Probably some day the public will have an opportunity of learning a little of the part played by No. 488 Mosquito Night-Fighter Squadron in discouraging the Hun from carrying out his "hitand-run" tactics over England; his much-vaunted plan by which Hitler hoped to reduce London and other large cities to ruin. He was quickly to learn that the inventive genius of the British had devised means of combating just such a hope, and although little can be disclosed now of the nature of this, suffice it to say that No. 488 became equipped with the most up-to-date apparatus for locating aircraft by night.

In the earlier stages of its career the squadron operated with Beaufighters from the west of Scotland, and its purpose was then to harry the German communication system through France by shooting up trains and locomotives.

It was not, however, until later in 1943 that its venue changed to the south of England, and equipped with the fast twin-engined Mosquito the squadron's role was altered.

Let us look first into its early career. In the first year it was commanded by Wing Commander R. M. Trousdale, of Auckland, a very youthful but experienced officer, who had the unusual distinction of being a wing commander at 21, with D.F.C. and bar and eight enemy aircraft to his credit. With him as one of his flight commanders was Squadron Leader P. Rabone, of Palmerston North, who had also seen service in France in the first days of the war. His record, and a record it certainly must have been at that time, was in having to resort to parachute jumps on six occasions by April, 1941. On the first occasion he landed behind the German lines. walked through Belgium to Dieppe, where he was fortunate enough to unearth a broken-down Hurricane which he patched up sufficiently to enable him to reach England.

The other flight commander, Squadron Leader J. R. Gardner, of Nelson, had flown Blenheim night-fighters early in the war, later transferring to Defiants. In July, 1940, his aircraft was shot down in the Channel, and although suffering from head injuries he managed to get clear of the wreckage and be picked up. The adventure put him in hospital for several months.

The squadron's experienced team of pilots was early to receive a rude shock by the loss of Flying Officer E. C. Ball, D.F.C., who was on his third tour, having carried out two in heavy bombers, the second with the famed No. 75 New Zealand Squadron; Flight Lieutenant R. I. McChesney, of Auckland, who had a Ju. 88 to

is credit and Pilot Officer J. A. Gunn, of Gisorne, whose score was one destroyed and one

amaged.

During its excursions against trains in France, hilst stationed in Scotland, the squadron had an ffective bag of at least forty on the board, in he course of which Pilot Officer G. F. Reed, of uckland, bagged a not inconspicuous total of hirteen locomotives. Pilot Officer E. C. Watts, of Invercargill, in one crowded hour attacked our. Davison successfully accounted for ten and injoyed the speedy promotion from flying officer o squadron leader in eight weeks. He succeeded Rabone as flight commander when the atter was posted to Malta. Rabone was awarded he D.F.C. at the conclusion of his tour in the Italian theatre.

Wing Commander P. Hamley, A.F.C., took over the command of No. 488 following its conversion to Mosquitoes, succeeding Wing Commander P. R. Burton-Giles, D.S.O., D.F.C. and bar, who had temporarily taken over following

Trousdale's departure.

The squadron's first victories with the fast new craft came in September, 1943, when two enemy aircraft were secured in the same night. Honour for these victories goes to Flight Lieutenants Gunn and R. G. Watts, although, sad to say, the incident cost Gunn his life. This marked the beginning of a successful stage in the squadron's history. On one memorable occasion, on the night of 22nd March, the squadron scored five kills, of which one of its flight commanders, Squadron Leader E. N. Bunting, D.F.C., an Englishman, had the distinction of shooting down two. A Dutch member of the squadron, whose name cannot be revealed, got a further brace, and the fifth was claimed by Flight Lieutenant Hall. To mark this great event the squadron had a visit the next day from Air Marshal Sir Roderic Hill, C.-in-C. of the Air Defence of Great Britain, and Air Vice-Marshal J. Cole-Hamilton, Air Officer Commanding the Group.

Hall increased his bag to four in April, and it fell to the lot of Warrant Officer R. F. D. Burke, of Pahiatua, to raise the flag for the non-commis-

sioned officers of the squadron.

By the time the invasion of Normandy began the scoreboard of the squadron showed twenty enemy aircraft disposed of, and in June following its sorties in co-operation with the Army had accounted for nine more.

Bunting brought his score to eight, with a F.W. 190 and a Ju. 88. Other good scorers for the squadron were Flight Lieutenant Hall, whom we have already mentioned, with four, and Flight Lieutenant G. E. Jameson, D.F.C., of Christchurch, with two. This brought Jameson's bag to

five, as he had already had three to his credit before joining the squadron. In this month Flying Officer Robertson, with a F.W. 190, increased his score to two, and Pilot Officer McCabe, of Whangarei, added a Ju. 88.

At the time of writing No. 488 is carrying on

the good work.

No. 490 R.N.Z.A.F. Flying Boat Squadron originated in West Africa on 28th March, 1943, with the arrival in the Command of the ground staff, but its official formation at Stranraer, with the allocation of aircraft, is recorded as 12th May, 1943. These six boats were captained by Flight Lieutenant P. R. Godby, the first flight commander and Flying Officers K. Patience, J. G. L. Pettit, J. Shepherd, N. A. Ward and R. Grant, with Wing Commander D. W. Baird as the squadron's first commanding officer. These craft—Catalinas—were marked with the initial letters of New Zealand provinces, namely, Auckland, Otago, Wellington, Canterbury, Hawkes Bay and Taranaki.

The squadron arrived in Africa late in June and immediately commenced training. The squadron's first operation was the location and escort of an armed merchant cruiser which had been torpedoed, followed in quick succession by an air/sea rescue job. The third was the squadron's first submarine attack. Unfortunately a kill did not result from the latter, but the submarine was extensively damaged and was later attacked by a Hudson and is believed to have

been definitely sunk.

Flying Officer Grant was the captain of the aircraft which took off in the early hours of the morning of 7th August to proceed to a position from which a merchant ship had signalled that she was being attacked by a submarine. On arriving over the locality Grant found two lifeboats and three rafts with thirty-nine survivors aboard. The air/sea rescue equipment, including food, water, medical stores, etc., was dropped from the plane and Grant got his crew to strip and made their clothing into a waterproof bundle, which was parachuted down to the lifeboats. Arrangements were made to send a naval vessel to pick up the survivors and she was eventually successfully escorted back to port.

On the same day as the squadron was carrying out an anti-submarine sweep, two Liberators on their first operational sortie from No. 200 Squadron were deviated to No. 490 Squadron's submarine position, and it was in the course of this sortie that Flying Officer L. A. Trigg, D.F.C., won his V.C., the second New Zealand airman to gain this distinction. The Liberator sighted another submarine some ninety miles distant from the first, and despite intensive A.A. fire and with

his aircraft enveloped in flame the pilot went on to attack the target which sank some thirty minutes following the opening of hostilities. Unfortunately the Liberator went straight on and dived into the sea, all on board being lost. Actually its dinghy, which floated up to the surface, was used by the survivors of the submarine crew, who were later picked up by a naval craft. The only record of the occurrence was told by the German first officer of the submarine, who expressed the greatest admiration for the gallantry of the aircraft's captain and crew in pressing home an attack which they must have realized would cost them their lives, rather than break off the engagement earlier and make a forced landing on the sea. The other New Zealanders associated with Trigg in this great deed were Flying Officer I. Marinovitch, of Auckland, Flight Sergeants T. J. Soper, of Takaka, Nelson, A. G. Bennett, of Wellington, and L. J. Frost, of Auckland.

Wing Commander Barry Nicholl took over from Wing Commander Baird on 27th November, 1943, just prior to the decision being reached to re-equip the Squadron with Sunderlands.

For a brief period in November, No. 490 had its full establishment of nine aircraft, but unfortunately one was lost following an accident, which unhappily resulted in six of the crew, including the captain, Flying Officer Grant, being killed. A second boat was lost to the squadron by handing over to another unit it was helping out.

Of the whole aircrew members of the squadron New Zealanders formed roughly 50 per cent., but with a few exceptions the ground crew were R.A.F.

The flying times up to the end of December included 2,700 hours on operations dating from the first operational flight on 2nd July. In December an operational record for the West African Command was set up with 432 hours by day and 245 hours by night, a figure which had been surpassed only on two previous occasions by squadrons equipped with eighteen aircraft.

The squadron's operational duties consisted mainly of convoy escort by day and night, sweeps and submarine patrols and air/sea rescue work involving at times a great deal of flying in foul weather.

In a report from the C.O. in January, 1944, he stated that although the squadron had not yet been successful in sinking a submarine there was little doubt that, as a result of their sweeps and patrols, they had helped considerably to keep the enemy beneath the surface and reduce the sinking of surface vessels to a minimum. To quote his own words: "This anti-submarine business is rather like cricket; the runs saved in

the field count as much as the runs made off the bat towards winning the game."

The operational requirements for the next few months were very low. The squadron had by this time established a firm liaison with H.M. ships in West African waters. At the time of writing No. 490 is carrying on the good work, and despite the monotony of the operational life a high morale exists in the unit.

In conclusion, it is stressed that the foregoing picture of the R.N.Z.A.F. in the European theatre of war is a small picture only and because of its limited scope it is feared that the full scale of New Zealanders' activities in the air war will not be seen in its true perspective. An effort, however, has been made to refer briefly to several of the better-known New Zealand airmen, particularly those who have been associated with the New Zealand "Token" Squadrons, but as pointed out earlier, there are many equally deserving of mention, whose records compare with the best, who have operated with Royal Air Force squadrons in every locality. An assurance can be given, however, that their names and full details of their operational service will appear in due course in a more comprehensive work on the same subject.

# An Airman's Prayer

We are young men, God, not noble, And we are keen to live, But for reasons none need ask us Our lives we freely give, And our hearts make fugitive.

We are eager men, O God, eager To beat this bullying foe, And fly into his bastions With our bomb doors low, And die if need be so.

We are humble men, O God, when We contemplate our death, And fearful, and quite naked Before the flak's hot breath, And the gun's red wrath.

We are young and eager,
And not too humble in Your sight,
And we need Your present grace
In the harsh unyielding fight
To smash the tyrant down with our multiplying might.

B.P. U.S.A.A.F.

# The Indian Observer Corps

By J. A. McD.

## INTRODUCTION

OME readers will know about the existence of an Indian Observer Corps but very few will know anything about its history or its present role in the mobile warfare conditions now prevailing in the Manipur and Arakan areas. The object of this short article is to outline the history and present-day set up of a corps which has now assumed an important role in the air defence plan of India and is an integral and indispensable factor in the air defence layout for the protection of forward aerodromes as well as base areas and areas of vital strategical importance.

### HISTORICAL

The Indian Observer Corps was sanctioned by the Indian Government in 1940, when there existed a threat of invasion through Persia and the North-West Frontier provinces. The routes to be guarded were the same routes followed by invaders from the time of Alexander the Great and the main gates for entry to India through Quetta and the Khyber Pass. The Indian Observer Corps in many ways was fortunate in having its origin in such a traditional setting. Whole chapters of military history can be traced from the visible signs of occupation by British and Indian forces in the gorges of the Khyber Pass and along the mountain roads that twist along the passes to Kohat and Malakhand. The R.A.F. too knows the austere beauty of these jagged skylines and the hot receptions from rebel tribesmen taking cover in the sombre nullahs. It was said in pre-war days that every staff officer's chair in India was oriented to the North-West Frontier. It was here that some of the best Indian fighting men were to be found; it was along these mountain roads and crests that the toughest campaigns were waged, and now fate and the Indian Government had decided that it was the North-West Frontier area that should cradle and rear the newly constituted Indian Observer Corps.

The first role of the I.O.C. was therefore to set up a chain of posts in these North-West Frontier areas, capable of reporting all movements of aircraft rapidly to the operational centres concerned, these being Quetta, Peshawar and Rawalpindi. The immense task of recruiting and training observers was, of course, undertaken entirely by Indian Army officers with

knowledge of the country and ability to speak the dialects and choose observers with the required ability. The siting of the observer posts and the operational lay-out generally was supervized by a senior R.A.F. officer, the late Group Captain Vaughan-Fowler, who was specially sent out from the United Kingdom for this work and nominated by the Indian Government as Inspector of the Indian Observer Corps. The observer posts and centres were designed and built by the Military Engineering branch of the North-West Army, and the land-line telephone communications laid and maintained by the Indian Posts and Telegraph Department. This division of responsibility in the I.O.C., namely, that the Indian Army should be responsible for recruiting and military training, and the R.A.F. responsible for technical training and the operational control and lay-out of the network of posts, holds good and is not likely to change during the war.

So these small isolated observer posts, their telephone lines and the letters I.O.C. gradually came to mean something in the North-West Frontier areas of India. The closely guarded observer centres at Quetta. Peshawar and Rawalpindi were completed and manned, subcentres opened up, for example, at Abbotabad, plotting tables built, personnel trained in plotting duties, as supervisors, etc., and slowly but surely the network was completed so that by 1941 the system, with its several hundred miles of telephone lines began to hum with activity and the position of aircraft flying in these areas accurately plotted and passed to the adjacent R.A.F. operational centres. Naturally, the lay-out and procedure was copied by Group Captain Fowler from that in force in the United Kingdom, where the Royal Observer Corps had brought ground observation and plotting of friendly and enemy aircraft to a high state of perfection and rendered duty of such high national importance during the Battle of Britain that the distinction "Royal" was added to their title. To visit these I.O.C. posts in North-West India, at that time so austerely set out along the frontier, was to see a story from a "Boys' Own Paper" come to life. Much could and perhaps one day will be written about the immense difficulties of recruiting large numbers of young and partly educated Indian Pathans, Punjabis, etc., and the training of these into competent observers. The Indian Army officers who carried out this work were, of course, selected for their vast knowledge and experience. Foremost among them was Colonel Powell, of the Indian Cavalry, with a unique knowledge and long experience of recruiting conditions in North-West India. The British officer was the mainstay of the I.O.C. in these early days, and still is, although the number of Indian officers in the I.O.C. is naturally increasing.

The I.O.C. was fortunate that it started its early career in the North-West Frontier area because it recruited a man that the laws of nature and survival had made an observer of the highest acumen, gifted with natural powers of sight and hearing "par excellence." Many of the original recruits for the I.O.C. were taken from the farmer class to whom observations of every move amid their native hills was marked with a caution that by western standards would be excessive, but by their own standards was an essential feature of their daily existence and an asset which was to stand them in good stead later on when the jungles of Burma took the place of the hill crests of the Frontier. There is accumulating evidence that the observers recruited from hillmen can adapt their acute powers of observation to jungle conditions with merit.

1941 found a very efficient observer system in the North-West Frontier area of India operating on much the same lines as the Royal Observer Corps in the United Kingdom, and a system which was already proving an asset to the R.A.F. in keeping accurate track of aircraft movements in these areas.

#### EFFECT OF JAPANESE ADVANCE ON INDIA

The occupation of Burma by the Japanese threw India on to the defensive and Calcutta and important industrial areas in Bengal and Bihar came within easy range of Japanese bombers. The whole of the East Coast of India and Ceylon was open to raids from carrier-borne aircraft. The I.O.C. was now called on to recruit in these exposed areas and establish posts linking the main R.A.F. operational centres in Calcutta, Madras, etc. The I.O.C. began to recruit from sources which had not yet been tapped, chiefly the Bengal, United Provinces and Madras areas. There was no lack of volunteers and the strength of the I.O.C. soon exceeded 10,000. Gradually a network was built up covering the areas threatened. The main difficulty lay, as always, with communications. In the North-West Frontier areas both time and material had been available, but now time was short and all types of land-line telephone equipment that could be spared from India's limited stocks were urgently needed for communications in the forward areas

in Eastern Bengal. Communications in Eastern Bengal had always been meagre (in fact only one main telephone route between Burma and India existed in peace-time) and it was in these undeveloped areas that the Army was now operating, and the advanced aerodromes located. In some areas such as the Sunderbunds area, which is the enormous delta created by the Ganges and Bramaputra rivers, land-line communications were impracticable on account of flooding under monsoon conditions, and these conditions covered many other areas as well. In areas such as these, observation posts were equipped with W/T, and until 1943 were manned by British R.A.F. personnel. Recourse was therefore made to siting posts along railways wherever the run of the railway suited the lay-out. By this method use was made of existing railway communications and very useful this system proved. Observer centres were opened close to the main R.A.F. operational centres, the chief I.O.C. plotting centre being in Calcutta. By the end of 1942 a reasonably efficient observer system existed covering East Bengal and at vulnerable points along the East coast of India well to the south of Madras. The main role of the I.O.C. in these areas was, in addition to plotting movements of all aircraft, to endeavour at all costs to ensure that no low-flying raid got through to an important area unobserved. By the end of 1942 the network of I.O.C. posts in Bengal and North-East India and in selected areas along the East India coast was operating reasonably well, and providing the R.A.F. with a valuable check on aircraft movements in these areas. Early in 1943. Japanese aircraft raided Calcutta on several occasions. Aircraft normally flew at high altitudes, making accurate observation from ground observer posts difficult. Even so, the I.O.C. were passing valuable information to the operation rooms, and their ability to observe raiders at medium and low altitudes was a factor of great importance to the R.A.F. At this stage, i.e., during 1942 and well on into 1943, the I.O.C. maintained its posts only where land-line communications could be provided. In the Sunderbunds areas, and where observer posts were required to guard against surprise attacks on our forward airfields, these were provided and manned by R.A.F. wireless observer units, W/T links to the operation centres taking the place of land-line communications.

Up to this stage the role of the I.O.C. had been essentially a static role and the observers were recruited for duty in their home areas. The only exception to this rule had been to move trained instructors from the North-West Frontier areas to new centres opening up in East and North-

East India to help train new personnel and open up new centres. In fact it had been held out as an attraction during recruiting and to help attract the educated types of young Indians that service would only be called for in their own districts within easy access of their homes.

## FORMATION OF MOBILE OBSERVER UNITS

By March, 1943, the whole conception of the I.O.C. and its organization had undergone a fundamental change with far-reaching effect. The enemy raids on India had been far from sustained and the threat to the vulnerable areas in East and North-East India had not materialized. True, the few raids on Calcutta had considerable effect on Indian morale, but the Japs refrained from following up this advantage and, instead, switched their attacks to the forward areas in East Bengal, choosing the airfields as their main objectives. This change in enemy tactics placed the main responsibility for ground observation of enemy raids not on the I.O.C. but on the R.A.F. wireless observer units manning posts in the Sunderbunds, Arakan and Manipur areas. The I.O.C. was manning static observer posts in North-West India, on the east coast of India and in the industrial and developed areas of Bengal and Bihar, but in the undeveloped jungle areas of East Bengal, where our forward airfields were and where the army was in contact with the enemy, the ground observation was done entirely by R.A.F. personnel. In these forward semi-jungle areas observer posts were often in isolated positions causing hardship to airmen because of the difficulty of maintaining supplies of food and comforts, and because the areas were heavily malarial.

The decision was reached to call on the I.O.C. to provide mobile observer companies to relieve all R.A.F. personnel engaged on observer duties and to open up new lines of observer posts as required by the R.A.F. in accordance with the military and air situation. In relieving the R.A.F. observer units in East Bengal the I.O.C. would accept the responsibility of being the main and probably the only source of information on low-flying enemy raids. This role was, of course, far beyond that conceived for the I.O.C. in its inception or even up to the end of 1942.

The first action was to tap the existing I.O.C. sources in North-West India, United Provinces, Bengal, etc., and encourage the best educated of the Indian personnel to come forward for training not only as observers for the new mobile units but for duty as wireless operators, wireless mechanics, M.T. drivers, medical orderlies and cooks. In selecting volunteers it was soon evident that, anyway in the I.O.C., the idea that

volunteers for this type of work would come mainly from the martial classes was an exploded myth. All areas subscribed their quota of volunteers without restraint. Naturally, the rates of pay had to be raised and made attractive and comparable with the rates in other technical branches of the Indian Army, such as the Signals Corps, etc. Young British and Indian officers holding King's commissions had to be selected for command of the mobile I.O.C. observer companies to be formed and it was imperative that these officers should be the type to accept the responsibility of commanding units isolated in strange country far from their parent organization and stretched out alarmingly over tracts of undeveloped and probably inhospitable country. Even more difficult was the task of selecting Vicerov's commissioned officers. The V.C.O. is often described as the backbone of the Indian Army. The V.C.O. is usually a platoon or troop leader and the indispensable link between the Commanding Officer and the men in the unit. In peace-time it would take an Indian soldier probably a dozen years to become a V.C.O. Discipline in the unit depends on him. The I.O.C. were now confronted by the task of selecting several hundred V.C.Os. whose service in the I.O.C. could not be more than three years maximum. Hindu and Moslem mobile units had, of course, to be kept distinct and trained as such. The strain of all this sorting out and reclassifying fell once again on the strong shoulders of the Indian Army officers who recruited the I.O.C. originally in 1940. The technical side of the business was the responsibility of the R.A.F. and quite another

The Indian Government approved the scheme for the expansion of the I.O.C. and sanctioned the formation of sufficient mobile wireless equipped observer units accepting the responsibility for their military equipment and training provided the R.A.F. assumed responsibility for their technical equipment and training. Indian personnel of a higher educational standard than the I.O.C. were already undergoing training extensively for the Indian Air Force under British instructors and it was decided to follow similar lines for the training of I.O.C. personnel. Training centres were created at Rawalpindi to cover the North-West Frontier area, and at Allahabad to cover the United Provinces and East India areas. The command of each training centre was given to an Indian Army officer with long service and experience of dealing with training Indian personnel. A Records Office was set up to coordinate the formation of these new units and formulate the new rates of pay and conditions of service. Staff duties and policy were regulated by the Inspectorate of the I.O.C. at G.H.Q., New Delhi, which received its directions from and was controlled by the Air Staff at Air Head-quarters and the Director of Military Organization branch. British instructors (on a volunteer basis as far as possible) and with experience of conditions in R.A.F. manned wireless observer units were drafted into the two I.O.C. training centres and the whole experiment, for such it was, gradually took shape.

The training period at the newly formed training centres for personnel of these mobile wireless observer units was originally intended to be twelve weeks, but this was soon extended to nearer six months. The difficulties encountered in setting up these training centres can well be imagined, since nothing on similar lines had been attempted before in the history of the Indian Army. There was an acute shortage of technical equipment, aircraft models and epidiascopes, and the resources of India had to be tapped at every likely point. Observers had to be taught M.T. driving and maintenance, the more educated being selected for W/T training. The Indian Army authorities provided the military instruction required in rifle and automatic weapon training, an essential feature since it was assumed at the outset that these mobile observer units would in emergency have to defend their posts. The lay-out of the training centres was finally arranged on the following lines:—

- (a) A section for elementary lectures in W/T morse and W/T procedure training.
- (b) A section for advanced training in W/T including a thorough knowledge of the sets and generators.
- (c) An aircraft identification section devoted solely to training observers in rapid aircraft recognition and plotting.
- (d) A section for training in all military subjects, M.T. driving and maintenance, cooking hygiene, first-aid, etc.

Until the I.O.C. could provide its own competent instructors obviously the paramount difficulty would be the language one. Patiently and in simple language the R.A.F. instructors tackled their job. Trainees were provided with notebooks, and in the evenings discussed among themselves the day's instruction. British and Indian officers arrived at the centres and commenced training with the personnel they would later command in the field, and this interest of the young officer in the training of his men naturally stimulated the whole system and they were quick to realize that the maximum benefit must be derived from the Training Centres, be-

cause once a unit moved to the forward areas opportunity for training would be negligible. Advanced training took the form of manning posts and arranging with the nearest R.A.F. units for aircraft to be routed over the posts. The existence of observer posts already built in the North-West Frontier areas not only made this advanced and realistic training easy to lay on, but enabled the operational value of the units to be carefully assessed. It also enabled the officers and V.C.Os. appointed to these newly formed I.O.C. mobile wireless observer units to visit their posts laid out and in operation in exactly the way they would be later on. The existing telephone lines connecting the posts to the centres enabled faults in procedure to be checked and rectified by the British instructors controlling the training. Increase in pay based on the new rates for technical personnel of the I.O.C. were not granted until the advanced training was successfully completed and likewise officers were not granted their appropriate rank until they had satisfied the O.C. Training Centre that their units were fit to proceed to war stations. There is no surer way of getting the most out of the Indian trainee than by withholding new rates of pay until the required standard has been attained.

And so early in 1943 the I.O.C. training centres were established and the task of turning the better classes of the I.O.C. into mobile wireless observer companies (as it was decided to call them) was in full swing. Amidst great jubilation a newly formed company, having passed its advanced training and trade tests, went on two weeks' leave before collecting its mobilization equipment from Ordnance, parading for its final inspection and address by the Inspector, and then the great adventure of moving by road and rail to its war station. It has been explained how the companies were formed from I.O.C. areas where I.O.C. personnel were already available in order to keep their identity intact. These companies were thus formed and known as No. 1 Punjabi Company, No. 2 Bengal Company, etc. Who commanded these companies? The first companies to form were commanded by British officers selected by G.H.Q., New Delhi, for their ability, knowledge of Indian troops, and likelihood to adapt themselves quickly to these mobile observer duties. These officers were volunteers from Indian Army units and, of course, with the required standard of knowledge in language and general Indian military matters. Gradually Indian officers too came forward and were successful in being selected both for duty at the training centres and for command of companies. It was essential that all officers, British and

Indian, should be young, self-reliant, technically minded and keen on a high standard of maintenance of their vehicles, W/T sets, etc., and thoroughly trained in military defensive tactics. A typical Indian officer among the first to volunteer for I.O.C. duties was Dilbur Khan, who transferred from the Indian Armoured Corps. Dilbur Khan was a Pathan from the Tribal territory. His father and seven brothers were killed in tribal feuds before his mother and the remaining members of his family sought asylum in Peshawar Cantonment. Dilbur Khan completed his education at Lahore University, where he obtained a degree. He spoke Pushtu and Punjabi, and spoke and wrote fluently in both English and Urdu. He was 23 years of age when he took over command of a Pathan I.O.C. company and has since seen hard service in the Manipur area. There are many more cases like Dilbur Khan's, and obviously this type of young Indian officer is a tremendous asset to the I.O.C. The training of the I.O.C. can never be entirely satisfactory until it is carried out mostly by Indian instructors with the required knowledge and experience, since only the Indian instructor knows how far the knowledge is penetrating and the instruction beneficial. In the early training of these I.O.C. mobile units, to put the most advanced Indians in the companies to ensure the success of the experiment and try at the same time to train Indian instructors to relieve the R.A.F. instructors as quickly as possible was almost an insoluble problem. Only time, however, can solve this problem by allowing trained Indian personnel to be withdrawn from companies that have seen service.

## FROM KYBER HILLS TO THE BURMESE JUNGLES

Early in the summer of 1943 the first I.O.C. mobile observer companies left their training centres and took up duty in the Arakan and East Bengal areas extending north along the Burma frontier into the Naga Hills north of Manipur. Here they relieved R.A.F. personnel at forward observation posts and also opened up new posts as required. R.A.F. personnel had been carrying out forward observer duties in these areas for nearly twelve months and tribute must be paid to these airmen for the way they had maintained watch in these jungle and unhealthy conditions, exposed to the effects of monsoon malaria and monotony. Not that it should be supposed the Indian observer would feel at home in these conditions merely because he was an Indian. A Punjabi would be as far removed from his native terrain in distance and surroundings in Arakan as say a Scotsman serving in Italy. In many respects service on the Burma frontier is equivalent to overseas service for most Indians. These observers came mostly from primitive fields and villages and jungle conditions were entirely strange to them. They had joined the I.O.C. mostly for economic reasons and to improve their education and knowledge; they were never intended to serve outside their provincial areas until the formation of the mobile wireless observer units was sanctioned, and opened up new possibilities as well as new conditions of service.

Now the I.O.C. is firmly settled down in this new mobile role and, according to reports, doing better than was ever anticipated. In the same way as in the static areas these mobile companies operate under the operational control of the R.A.F. Their supply and reinforcement organization is an Indian Army responsibility, but a senior I.O.C. officer co-ordinates requirements at a forward base control unit. The training centres keep in touch with the forward units and withdraw personnel from time to time for special courses and duty as instructors. Stagnation is not allowed to creep in. These mobile units supply plotters for the R.A.F. Operational Rooms into which they feed their information. An I.O.C. liaison officer maintains contact with the R.A.F. operations staff and deals with requirements for new posts and revised operational lay-out. Each mobile unit has its own company headquarters where the organization of the company is centred, transport held and the O.C. company and his small staff live.

The best way I can describe a trip to some of these advanced I.O.C. posts on the Burma frontier is to give an extract from a staff officer's letter describing his experiences on a tour.

"On my last trip I went up very close to Maungdaw to a post sited between our guns and the enemy. The I.O.Rs. were very excited and took great interest in shell bursts and divebombing. One post always made it a point to pass his plot as the last bomber pulled out. This gives a good idea of how far forward the I.O.C. is. I travelled over jeep tracks made by I.O.C. companies that brought me palpitations. At one place the climb was so steep that wire netting was laid out to get a grip. One post was reached by crossing a river seven times. Once I was up to my thighs when we got stuck. Captain Burt has a deflector built to his exhaust to keep the engine running under water. If the plugs are dry it keeps going. Each river crossing makes the depth greater as the hollow in the river bed deepens. I sat on the bonnet acting as pilot as on a bombing run. Left, left, right a bit. You would be surprised how the I.O.C. have improved in driving. Another post we visited by driving along a bund just over the width of the jeep with a six-foot drop on either side. We got held up by the small monsoon and walked eighteen miles with mules doing about two and a half miles an hour foot deep in mud to Bawli Bazaar. We stayed a day to dry out and completed the journey by jeep and fast steamer to Chittagong. Our truck was there waiting with its smiling I.O.C. driver. I am afraid I am too old for this type of touring. One company commander attempted to shoot a rapid for three days before he got through. The I.O.C. Indian personnel have become very attached to the R.A.F. airmen who remained behind at posts to assist in the change-over. The Indian other ranks love to copy the British other ranks. The main point I want you to grasp is the R.A.F.'s complete confidence in the I.O.C. to report on all aircraft movements in the forward areas. One post we visited had a night fighter visitor ten hours before we arrived. Several natives were killed and boats damaged. The I.O.C. had its message away before the firing finished. As the attack was only 100 yards away the I.O.C. can stand up to it.'

With the development of the war in the South-East Asia Command, the I.O.C. has an increasingly important role to carry out in reporting aircraft movements in the forward areas, and it looks as if it could be trusted to fill this role with merit. As the threat to the static areas of India fades out, so the I.O.C. takes up its new role of establishing its mobile posts to cover the forward aerodromes and important centres of supply and communications. It has a sound training organization behind it which improves with new equipment and withdrawal of trained men from the forward areas to become instructors. Slowly but surely all training will be Indianized.

The I.O.C. is a young man's corps. Even now the average age is only about 20; little is known of its future. It is rapidly becoming a highly technical corps, capable of accepting more and more responsibility. It offers an attractive career to the young Indian, and much knowledge which will benefit him when he returns to his town or village. The British officer of the right type is still the mainstay of the I.O.C., but there is a growing number of Indian officers of fine worth like Dilbur Khan who will willingly accept responsibility, and I believe the future of the I.O.C. lies more in their hands than in ours. The R.A.F. must continue to control the operational activity of the I.O.C. and direct its training on the right lines. The Indian Army has so far borne well the brunt of the main task of raising the Corps and organizing it on its present basis, but who knows but one day the Indian Air Force might take over the I.O.C. and train its airmen and observers together where the subjects to be taught are common to each branch of the Service.

The Indian is a first-class observer; his natural powers of rapid observation make him so. The Indian hillman is without equal in powers of sight and hearing. In the more technical branches of wireless procedure and maintenance, M.T. driving and maintenance, he has shown that in the hands of capable instructors he can be moulded to the standard of his British counterpart. It is not a far step from the observer centre to the main plotting room. There is no inherent reason why it should not develop on these lines.

# CONCLUSION

India is a vast country with several thousand miles of frontier to guard. On grounds of expense and lack of communications an observer corps on the lines of a fixed lay-out is ruled out. A mobile observer corps system operating as part of the main air defence plan would appear to be a distinct asset to the defence of India. The development of the war in South-East Asia has brought into being an Indian mobile wireless observer corps which, like the Indian Air Force, shows prospects of taking up its full share in contributing to the defence of India as a whole

# Biyouac

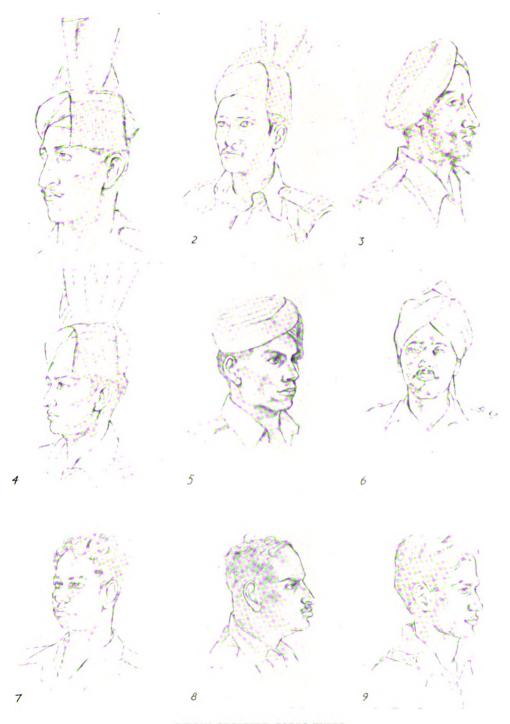
Bivouac, and the calm stars Stud the black curtain of the night. Men sleep as though they had fallen In despair or death or fright, And nevermore would see the light.

The sentries walk the shadows In merciless monotony, Waiting out the scrutiny of the dark, While war with vagrant fluency Bides its time in devilish ecstasy.

Only the night knows mercy— Has alone created momentary peace: The guns grow cool on the stacks, Gear and bodies find a brief release In the quiet moving of the sombre trees.

> B. P. U.S.A.A.F.





# INDIAN OBSERVER CORPS TYPES.

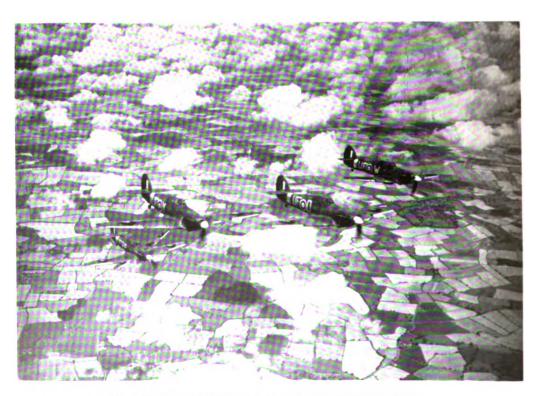
(Drawings by Sergeant N. J. W. Thrower)

- 1. North-West Frontier Province Pathan.
- 2. Baluch Pathan.
- 3. Punjabi Sikh.

- 4. Punjabi Mussalman.
- 5. Jat Hindu (Delhi District).
- 6. Jat Hindu (United Provinces).
- 7. Bihari Santhal.
- 8. Bengali Bhramin.
- 9. Madrasi Christian.



A TYPHOON LOADED WITH EIGHT ROCKET PROJECTILES.



HURRICANE IIS EACH FITTED WITH TWELVE MACHINE GUNS.

# Aircraft Maintenance in War

By GROUP CAPTAIN F. E. STOKES

SERVICE aircraft, and the equipment they carry, continually become more complicated. It is part of the price we have to pay for improvement in operational efficiency.

We should not infer from this that they become any less reliable. Almost any machine will work reliably so long as sufficient time and labour are devoted to its maintenance, and the aeroplane is no exception to this. The less attention it requires the better, however, and we might expect that advance in design would bring with it a reduction in the maintenance commitment.

In peace this was usually so, for there was time then for prolonged service trials before a new type was put into production. War, however, demands the latest and best as quickly as possible. Aircraft are ordered "off the drawing-board." Performance is the all-important consideration. Ease of production is an essential factor in design, but ease of maintenance cannot figure on a high priority in specifications.

The range of ancillary equipment for the aeroplane increases steadily. New devices for greater striking power, for more accurate navigation, for higher altitude flying, and for every conceivable radio facility appear one after the other and they must all have their quota of periodical attention if they are to continue working properly.

Active service imposes greater stresses and rougher usage on aircraft generally. There is every reason therefore for aircraft maintenance commitments to increase since the war began.

War calls for the maximum flying effort from the Royal Air Force. The more time that an aeroplane requires for maintenance the less will it be available for flying and the total flying effort is therefore a function of aircraft strength and maintenance capacity. There is now, fortunately, an adequate supply of aircraft, and maintenance manpower has become the limiting factor on the amount of flying that the Royal Air Force can do. Aircraft maintenance to-day, therefore, requires not only an ever-widening range of technical knowledge on the part of those responsible but also the highest possible efficiency in organization.

#### **OUALIFICATIONS OF PERSONNEL**

A large proportion of the non-commissioned members of the Royal Air Force are occupied in the task of maintaining aircraft. For this purpose they are trained—by the Service itself for the most part—to skilled or semi-skilled standards in various engineering trades.

The proper maintenance of aircraft—and therefore their airworthiness and operational efficiency—depends in the first place on the technical knowledge and skill of hand of those who handle the tools. Their familiarity with the details of aircraft structure and mechanism must be kept up to date and their Service training is therefore supplemented by special courses of instruction at manufacturers' works on new and modified equipment. The supervision, direction and coordination of their work is the responsibility of qualified technical officers.

To supervise maintenance work, the engineer officer should have the widest possible knowledge of both the theory and practice of aeronautical engineering and an appreciation of the behaviour of aircraft in flight. To direct and co-ordinate the work he must have organizing ability and a knowledge of technical administration within the Service. He should, in fact, be not only a technical expert but also a production engineer, something of an economist, and preferably a qualified pilot. If he is employed on engineering staff work he will need a knowledge of Royal Air Force staff duties.

Now technical proficiency, administrative ability, and a flair for organization are the qualifications for an engineering manager in civil industry. The Service engineer must have something more. He is, first and foremost, an officer of the Service and he must be able to undertake the extraneous duties that arise in general Service administration. He must appreciate the work of other branches of the Service, and how his own work has to be dove-tailed in with theirs. And he must appreciate his wider responsibility as a commander, however junior, for the discipline and welfare of the men and women who work under him. He has duties, therefore, for which there is little or no equivalent in the work of a civilian engineer.

There is, moreover, a fundamental difference in outlook between the civilian and the Service engineer. The civilian engineer first views a job as a business proposition. He wants to be certain that it can be done economically—and in this sense economy means efficiency in the broadest sense. Suppose, for example, a contract for the repair of aero-engines is contemplated. This work, if it is to be done efficiently, calls for cer-

tain special tools, properly designed and fitted workshops, and an adequate supply of spares. It can be done with improvized tools and makeshift accommodation, but it will not be done efficiently. In other words it will take many more manhours of work, and if the job cannot be done economically the civilian engineer will refuse—indeed he will not be called upon—to do it. For financial reasons his firm will not undertake the work until the facilities necessary for efficient production can be provided. In short, the job is turned down if it does not pay.

The Service engineer, on the other hand, can seldom turn down or even postpone a job on this score. On active service he will often have to make do with inadequate tools and makeshift accommodation. His supply of spares is frequently meagre. He is not concerned with financial economy, but operational requirements will probably insist that the job be done somehow. So he must always be ready to improvize—often to an extent unheard of in civilian engineering.

The industrial engineering manager, concerned with long-term production planning, may reject improvization because it is economically unsound. The Service engineer must think in terms of the flying effort that he can support in the immediate future. He must accept improvization because he cannot afford to wait.

It was the policy before the war that a proportion of Service engineer officers should be General Duties officers who had passed a course of engineering training. Having qualified as engineering specialists they were then employed alternately on engineering and flying duties. It was intended by this means to ensure that, as far as possible, engineering duties would be carried out by officers who were qualified pilots and who could fully appreciate operational flying requirements.

This system, however, had its drawbacks. In the first place it took an intensive two-year course to train a General Duties officer as an engineering specialist. The output of the course was not sufficient for the total requirements of the Service and the remainder was provided by commissioning airmen of the fitter trades. Secondly, the course did not attract a large number of applicants. The prospect of relinquishing flying duties for three or four years did not appeal to many General Duties officers, and few, in any case, had any personal inclination towards engineering. However, qualification in this, or in one of the other specialist courses, was one way in which short service officers could gain permanent commissions. Many took the course mainly to achieve this end rather than because they wanted to be engineers, and regarded their subsequent tour of engineering duty as a tedious period to be endured before they could return to flying duty.

Circumstances were radically changed, however, by the expansion of the Royal Air Force in the period immediately before the war, which called for many more engineer officers. By reason of the increasing complexity of aircraft and the problems that arose in maintenance organization. it became apparent that an officer could not maintain the required proficiency as an engineer unless he continuously worked in that capacity. It was equally clear, for that matter, that flying and air staff duties could be carried out efficiently only by officers who devoted their attention to the practice and study of flying operations. Under present-day conditions, an officer employed alternately on flying and engineering duties would be fully proficient in neither.

It was therefore decided, shortly after the war began, that this system should be abandoned and that, with very few exceptions, General Duties officers who were qualified engineers—and, incidentally, signals and armament specialists—would be employed on technical duty indefinitely. This measure helped to provide for the large number of engineer-officers required, especially in the senior ranks. The many junior engineering posts that arose were filled by means of a wide extension of the practice of commissioning airmen. The two-year engineering course was stopped and short engineering courses were introduced for airmen who were selected for commissions as engineer officers.

# ORGANIZATION OF TECHNICAL BRANCH

It was a logical development from this to form a separate technical branch of the Service consisting of engineer, signals, and armament officers, whose appointments and promotions now needed separate consideration, and who would henceforth be primarily responsible for the technical efficiency of the Royal Air Force. The formation of such a branch was in fact being considered before the war. The Technical Branch of the Royal Air Force was officially formed several months after the war began.

Although it had been announced that specialist officers would almost certainly be employed on technical duties for the duration of the war, transfer of such officers to the Technical Branch was not made compulsory. It was considered that this would have been unfair to those who did not wish to commit themselves to a career in the technical side of the Service. Moreover, it was clearly to the advantage of the Service that the Technical Branch should consist of officers with a personal inclination for technical work.

Given the necessary personnel, trained up to the required standards to do the work, we must finally decide how this large body of technicians can best be organized to produce the maximum

flying effort.

We must, in the first place, appreciate that it cannot be organized on the lines of an industrial firm. In such a firm, output is the criterion of success; the production organization is the primary consideration and all other services are adapted to suit its needs. The engineering manager's writ runs throughout a factory and his requirements have first priority. It is, of course, logical that, where engineering efficiency is an end in itself, supreme authority should be vested in the engineer.

In the Royal Air Force, engineering efficiency is a means to an end. The ultimate aim of the Service is to achieve the highest possible fighting efficiency. There are other branches of the Service whose efficiency is equally vital in attaining this aim, and the maintenance organization must conform with the organization of the Service as a whole.

We might visualize an autonomous and independent technical branch which

- (a) had complete control of the posting, promotion, discipline and employment of all technical personnel;
- (b) contained within itself an organization for the distribution of all technical equipment; and
- (c) had its own service for the provision and maintenance of all technical accommodation and plant.

Such an organization would certainly produce the greatest technical efficiency, but would be hopelessly incompatible with over-all internal economy in the Service. In short, the Royal Air Force is a flying organization, and the maintenance organization, like other ancillary services, must be adapted to suit flying requirements.

# SERVICING FIRST-LINE AIRCRAFT

The tactical flying unit of the Royal Air Force is the squadron, with a fixed establishment, depending on the type in use. There are often several squadrons based on each main airfield and its satellite landing-grounds.

For major overhauls and modifications aircraft are usually transferred to technical units. In certain cases major repairs are carried out in situ by special mobile working parties. All other maintenance work is carried out within the squadron, and is known as "aircraft servicing." To service squadron aircraft ground crews are required and, since the squadron commander was, until recently, ultimately responsible for the servicing of his aircraft, it was logical that these

ground crews should be borne on the squadron establishment. The establishment also included a squadron engineer officer, to whom technical control of the servicing personnel was normally delegated by the squadron commander. In effect, therefore, the squadron engineer officer was responsible to his squadron commander for the servicing of the aircraft and for technical administration within the squadron.

It was administratively convenient that squadrons should be independent and self-contained units in this way, and this form of organization worked admirably in peace-time when there was no shortage of man-power or ground equipment.

The war, however, created several new factors in the light of which the efficacy of this system

became open to question.

In active operations the serviceability of firstline aircraft is of course of vital importance. It must be maintained as high as possible during periods of intense flying activity, and any method by which it can be improved must be given serious consideration. A squadron commander is constantly aware that the operational efficiency of his unit depends on the aircraft serviceability, but he is pre-occupied with the planning and execution of flying operations, and what little time that can be spared from this must be devoted to the administration of his air crews. Though he may be responsible, de jure, for the servicing of his aircraft, he has little or no time to spare for attention to this side of the squadron's work. Moreover, the problems of aircraft servicing are nowadays so essentially technical that an officer without engineering qualifications is in no position to give a decision on them. It is apparent, in such circumstances, that although operations may dictate the number of serviceable aircraft wanted at any time, the responsibility for producing this requirement rests, in fact, on the Technical Branch.

How far the Technical Branch can meet this demand depends on the available man-power, tools, technical accommodation and spares. These factors vary from unit to unit, but there is a more frequent variation in the immediate servicing commitments in different units. To a small extent, flying tasks, as they arise, can sometimes be allotted to those squadrons with a high serviceability state, so giving other squadrons, whose serviceability is low, time to recover. This is rarely possible, however, in some commands and it is better if we can at any time concentrate servicing facilities on those squadrons whose immediate flying tasks require them.

One other factor affecting the servicing problem is the need for mobility of squadrons in some theatres of war. Aircraft can move from airfield to airfield very quickly, but the movement of ground crews and servicing equipment (without a very extensive air transportation system) is painfully slow by comparison. Aircraft cannot operate without ground crews to service them, and from this point of view it is better to establish a static, servicing organization at each airfield. Ideally each airfield servicing organization should be capable of dealing with any type of aircraft, but this would require an extravagant range of ground equipment and a technical versatility on the part of the ground crews which would be quite out of the question in practice. Nevertheless, it is possible for an airfield "servicing wing," as it is called, to deal with several distinct but similar types, and by establishing such wings movement of ground crews between airfields can be greatly reduced.

# CONCLUSION

· A consideration of all these factors leads to the conclusion that ground crews should be removed from squadron establishments and brought under the centralized control (both technical and administrative) of a Servicing Wing Headquarters at each main airfield.

Under this system, all servicing responsibilities and a considerable burden of personnel administration, are removed from the shoulders of squadron commanders, enabling them to concentrate their attention on the conduct of flying operations. A squadron can be moved at short notice and be ready to operate from its new base almost as soon as it arrives there. Work can be quickly concentrated on any aircraft whose serviceability is a matter of priority. A greater economy in manpower and ground equipment comes from the pooling of these resources, for a given total of which a bigger servicing capacity and therefore a bigger flying effort is produced.

"Centralized servicing," as it is called, is the natural and logical form of servicing organization for flying training schools. A system of this sort was improvized locally at some fighter stations during the Battle of Britain. More recently it has been officially introduced in certain operational commands.

It has not been universally popular—least of all, perhaps, with squadron commanders who were loath to relinquish the command of the men and women who work on their aircraft, and who raised a strong argument against the system on

the question of morale.

They have pointed out—and rightly—that squadron esprit de corps among ground crews has proved to be of vital importance, particularly when servicing is carried out in difficult or dangerous conditions, and they suggest that this spirit vanishes in a centralized servicing system. If the Technical Branch produces statistics to show a saving in man-hours, they retort—again with some truth—that a "man-hour" is a variable unit of work, depending on the man and the circumstances. That a man does more work in an hour when his morale is high than when it is low needs no stressing. But we should not assume that esprit de corps must be lost in a centralized servicing system. If there cannot be squadron esprit de corps, there can be wing or station esprit de corps. There is after all an esprit de corps of the whole Service. There was no slackening of effort when servicing was centralized on those fighter stations in the Battle of Britain.

Economy of force is a fundamental principle of war and it is now a primary consideration throughout the Service. Every possible way of saving, both in manpower and material may be sought. In this search we cannot disregard the clear and logical advantages of

centralized servicing.

# The Qualifications of a Transport Pilot

BY SQUADRON LEADER R. C. E. SCOTT

In the course of a lecture delivered to a scientific association, in August, 1939, Mr. H. E. Wimperis, F.R.Ae.S., an authority on aviation, said: "The crown of achievement will not be truly won until a grateful mankind sees that the wings gained are the wings of a dove and not those of a bird of prey. . That is the challenge to our age. . Ever since man inhabited the he has lived not by his physical powers,

which are slight, but by the exercise of his wits. Every new invention he has made has had its warlike use as well as its peaceful purpose, and each has challenged his wits to ensure that good rather than harm shall result from the new discovery. To bend the newest invention of all, the conquest of the air, to the service of mankind is now his greatest task. In it, success is essential lest we presently find that it is the air that has

conquered mankind rather than mankind the air. Before we can regard the conquest of the air as achieved, we must control the warlike menace."

Those words might well be taken as a directive to the Allied Air Forces whose efforts now are turned towards the controlling of the war-like menace. But the controlling of the menace of the enemy's air power necessitates the establishment of a greater menace, and the greater part of our air forces are at present concerned with the spreading of death and destruction. The extensive and ruthless use of air power has convinced the world at large that Service aviation is primarily a weapon of war and man's conquest of the air is regarded with certain cynicism.

There is, however, one branch of Service aviation which carries on the ways of peace in the midst of war, and its members have an unsurpassed opportunity to prove to a sceptical world that the wings which man has won are those of a dove and not of a bird of prey. Air transport has the opportunity and the duty to bend the conquest of the air to the direct service of mankind, and through Transport Command the Royal Air Force can prove that its true aim is the pursuit of peace. The mission of a transport pilot, then, is a great one, for in its fulfilment he can render great service to his country's cause.

Every transport pilot is an ambassador for his service and his country, for his duties take him to strange places in strange circumstances. Through him, other Services, our Allies and the world at large may learn of the efficiency and purpose of the R.A.F. Indeed, his opportunity to enhance the reputation of his Service and his country is unique, for of all his country's servants he is the one most in contact with his country's allies. How, then, should our transport pilots be trained to appreciate and fulfil their high mission?

In recent months I have been engaged in training Transport Command pilots, and the problems which had to be solved as our new Command evolved seemed to me to be principally those involved in adapting Service-trained pilots to a semi-commercial system of operating and in impressing them with the significance of their mission as ambassadors of the R.A.F. In this connection, I particularly noticed a widespread but fallacious belief that any trained pilot could readily become a transport pilot, and it is regrettable that this view was most prevalent among those who should have known better. It is, perhaps, significant that those who held this belief emerged from training as the least satisfactory transport pilots. In other words, embryo transport pilots are not always conscious of the fact that when engaged on transport duties they are performing an important and specialized function. It is therefore apparent that selection of candidates for transport-pilot duties should be done with the utmost care and with due regard to the psychology of the individual.

It is also generally, and wrongly, believed that there is little science in air transportation and that a Service pilot has little to learn. True, many of the requirements of a good transport pilot are those of any Service pilot, but in addition a transport pilot has to have the knowledge required of a commercial pilot plus the tact and good sense required of any serving man who has to deal with strange allies in strange places. The duties of a captain of aircraft can be taught, but the material must be good and the spirit willing: the attributes of a good transport pilot can not all be taught; some must come from within. The selection of potential transport captains must therefore be from first-class material. If Transport Command is to avoid the implied stigma of being classed as "The Carter Paterson of the R.A.F. or "The Services' Bus Company" it is essential that its pilots should continually remember that theirs is an exacting and specialized duty requiring of them the highest standard of skill together with the diplomacy of an ambassador.

The qualifications of a commercial transport pilot are fixed by law. The commercial airline captain is responsible not only for the proper loading, checking and safety of his aircraft and the completion of any mission in exact compliance with orders but also for the safety and wellbeing of passengers and goods carried and for the conduct of his crew. These duties are taught to all service pilots, but the necessity to emphasise the operational aspects of a pilot's training prevents the giving of adequate instruction in crew discipline; instruction in the care of passengers and goods is not given. So it is apparent that a Service pilot being converted to transport duties must be instructed in the additional duties which he will be required to carry out. Nor does his training end there, for a good transport pilot, as opposed to a mere "Driver, Airframe" must understand and appreciate a great deal more. Within the limitations of his service he must be independent and self-reliant, for he will be required to work at a distance from his parent organization or, indeed, from any organization whatever. It seems to me that the selection of a potential transport pilot should be dependent on his possessing those qualities plus reliability and a willingness to subordinate his interests to those of his passengers.

The Service transport pilot is unlike all other Service pilots in that his duties are not confined to service to, or co-operation with, his own or other Services. His duties embrace service to our allies and to civilians of many nations and in the performance of his duties he will continually come into contact with people of all races and all classes. As he may be responsible for the safety and well-being of many persons whose viewpoints differ from his own, it is essential that he should understand such people in order that he may be in sympathy with their outlook. He must therefore possess tolerance and the ability to understand a stranger's point of view.

It cannot be too strongly emphasized that a transport pilot's duties do not end when he lands his aircraft. In isolated areas he may be responsible for the comfort of his passengers at intermediate stopping-places and he is at all times responsible for their security. At his destination he should not abandon his passengers until arrangements have been made for their reception. To carry out these duties well he must possess a strong sense of responsibility, for he must carry them out automatically and without regard to the status or nationality of his passengers. He must have interest in the welfare of each and every passenger and he should do all in his power to alleviate the hardships of war-time air travel. Perhaps it is unreasonable that war-time air passengers should allow themselves to be troubled by hardships and discomfort, but it must be remembered that war-time travellers do not travel for pleasure. Some passengers are unwilling to fly but must do so in the performance of their duties, others are conscious of the discomforts and fearful of the dangers of war-time air travel, and others resent discomfort as an affront to their status. In short, many passengers have varying causes for complaint and a good transport captain must do everything in his power to obviate or alleviate these causes, whether they arise in the air or on the ground. On his ability to handle his passengers tactfully and efficiently depends not only their opinion of the Service which he represents but also their state of mind and consequently their efficiency in carrying out their share in the prosecution of the war.

It is axiomatic that all members of the armed forces should know why they are fighting: a transport captain should know not only this but also the reasons why our allies fight. His duties will take him to foreign places and oblige him to work with allies whose conception of duty and reasons for fighting are different from his own. If he is to work efficiently with such people he must understand their attitude to the war and to do this he must grasp its background and its scope.

He must therefore be well informed: ignorance would be fatal to efficient co-operation.

It is not often realized that a transport aircraft is an operational aircraft and that the duties of transport crews are classed as "operational." But as aircraft of Transport Command are required to fly long distances in all weather and through enemy-patrolled areas (sometimes behind the enemy's lines) it is obvious that transport crews are often required to take risks as great as those taken by other aircrews. The transport pilot need not and should not be conscious of any inferiority to the pilots of the combatant commands. He must realize that his job is as exacting, as dangerous and as essential as any in the R.A.F., and for his job his training must be as specialized as is training for duty in any other Command. It has often been found that pilots selected for transport training are often disgruntled because they feel that they are "not really in the war." This complaint is absurd and every effort is made to convince the trainee that his future work is essential, for the best transport captain is the one who realizes the importance of his duties.

Finally, a transport captain should be an efficient pilot in all weather conditions; he must be a good navigator; he must possess a sound "weather sense." In addition, he must combine the endurance of a bomber or reconnaissance pilot with the celerity in action of a fighter-pilot. His airmanship must be excellent, for he must be able to work from strange, ill-prepared airfields or take wise decisions in harassing circumstances, and he must have a sound knowledge of the enemy's battle order in so far as it affects the routes over which he has to fly.

From all the foregoing it may seem that a first-class transport pilot is a rare person, uncommon in the Service. In practice, however, it has been found that, given the right material. the Transport Training Units can produce pilots who fulfil all the requirements. Indeed, the main difficulty in training transport pilots arise not from the quality of the trainees but from the shortness of the time available for training. By concentrating on making pilots think and act independently and by stressing the importance of their duty, Transport Training Units can produce sound pilots. There are, however, occasional difficulties in training transport pilots, arising out of the attitude of the trainees. I have already stressed the point that a good transport pilot must be psychologically suited to his work; in connection with this point I have noticed that there are four classes of Service pilots who are unsuitable for transport duties. They are: —

- (i) The man who "knows all the answers" —in other words, the person who cannot understand why a Service pilot is not ipso facto a transport pilot.
- (ii) The man who lacks a sense of responsibility and who cannot produce his best efforts unless closely supervised.
- (iii) The pilot who is disgruntled because he has been posted to what he chooses to call "a non-operational job." The complaints from this type of person often result from a frustrated desire to obtain tangible rewards for services rendered—known to the R.A.F. as "gong-hunting."
- (iv) The older pilot whose usefulness is limited by age. Too often old pilots are posted to Transport Command merely because they are too old to be employed in other Commands. It is too often assumed that old pilots are steady and reliable: the reverse is often true.

In conclusion, the essential attributes of a good transport pilot are high ability as a service pilot,

adaptability to new operating methods, a broad outlook, tact, and well-developed sense of responsibility and discipline. A pilot possessing these attributes will be an asset to any command, but particularly to Transport Command, which is the branch of the R.A.F. most in contact with other Services, our allies, and civilians generally. A demonstration of efficiency, courtesy and reliability by Transport Command can, even in wartime, instil in those outside our Service an appreciation of the true value of the air arm and particularly of the Royal Air Force's intention to bend the conquest of the air to the service of mankind. Of all the branches of all the Services. Transport Command alone has the chance to prove that the ultimate purpose of Service aviation is the service of the world in the ways of peace. Transport Command must grasp its opportunity and, if it is to do so, its representatives must be carefully selected lest any man fail in his duty. We must give to the selection of a transport pilot the care which we would give to the selection of an ambassador, for, surely, he is an ambassador for his Service and his country.

# **Education For Living—Its Practical Application**

By AIR VICE-MARSHAL H. K. THOROLD, C.B.E., D.S.C., D.F.C., A.F.C.

N the nineteenth century Englishmen could still view human history as a constant progress towards an ideal world. The signs of progress were accepted as self-evident-expanding markets, a rising standard of living, the progress of humanitarianism, the growth of democracy throughout the world, and the declining incidence of major wars. At the same time it was recognized that evils still remained. Dirt, squalor and ignorance were to be found in the industrial towns, and to the "lower orders" gin had more appeal than Matthew Arnold's "sweetness and light." But the inexorable and majestic march of human progress could not be stayed, and that age of optimism had the answer even to the regrettable shortcomings of the masses. The answer was education. When elementary education for all was provided by the Education Bill of 1870 it seemed that the millennium could not be long

Our own age has sustained a devastating series of rude and thought-provoking shocks. Our sense of the stability and security of society was destroyed in 1914 and has never been regained. But worse was to follow. The war fought "to make

the world safe for democracy "was the prelude to the collapse of democracy all over Europe. Fascism and National Socialism erected the methods of medieval barbarism into a system of government, and as technical advances made the weapons of war more destructive, moral paralysis sapped our will to keep evil and violence in check.

To our Victorian ancestors, perhaps the most striking disillusion of the modern world would be the failure of universal education to produce the expected good results. "Educated "Germans accepted the anachronism of a dictatorship. "Educated" Englishmen abandoned the gin palace only to find a no less insidious anodyne in the picture palace. At school they dipped the tips of their reluctant toes in the pool of knowledge, but when they left school it was the football pool in which they eagerly plunged.

An obvious explanation of the failure of education is that the majority of our people leave school at fourteen. Some, with Victorian optimism, see the raising of the school-leaving age to sixteen as a solution to the problems of our time. Others under no such delusion wish to

re-examine our conception of education. Sir Richard Livingstone has shown in "Plato and Modern Education" that the Greeks understood the aim of education to be "the good life" and their conception of education was essentially "a training in values." How far our modern educational system has neglected and finally lost sight of the true educational aim can best be tested by its products. Education is a subject often chosen by discussion groups in the R.A.F. These discussions show that airmen are most anxious that there should be more education for everybody, but they also reveal that their conception of education is limited to the acquisition of the knowledge and skills which lead to better jobs. When it is remembered that this view is tacitly accepted by many who have adopted education as a profession, any high hopes of progress one might entertain from the extension of the present educational system must be greatly modified. Education has become identified with vocational training, and concentration on the means of physical existence has led to neglect of the purpose of life.

The Victorians, who gave us our present system of elementary education, themselves identified education with literacy and it is not surprising that a system based on such a narrow conception has failed. But even in the seats of higher education the true educational aim is incompletely realized. Harmony and balance between the physical, mental and moral aspects of life are essential for living, but we do not find that balance. At the older universities there is a false distinction between the "hearty" and the "æsthete," so that tradition associates prowess at games with lack of brains and sensibility, and artistic appreciation with physical degeneracy. In England and America there is in general an exaggerated respect for the sportsman, in France for the intellectual, and in all three countries a disregard of the moral purpose of life.

A previous number of the QUARTERLY contained an article entitled "Education for Greatness" in which the writer pleaded in effect for a return to the platonic ideal of education; the more complete man, physically, mentally and morally leading a fuller life. This is education for "living" and not for "a living."

When, however, the broad fields of generalization are left for the narrow and obstructed paths of action there is inevitably a sense of anticlimax. It is easier to diagnose the diseases of our civilization than to recommend a satisfactory treatment. It is easier to recommend a treatment than to get the patient to accept it. Nevertheless, the Fighting Services have a unique opportunity to give practical expression to the true aims of

education, and the attempt will be made to indicate the possibilities of education in the Royal Air Force based on the experience of what has already been tried.

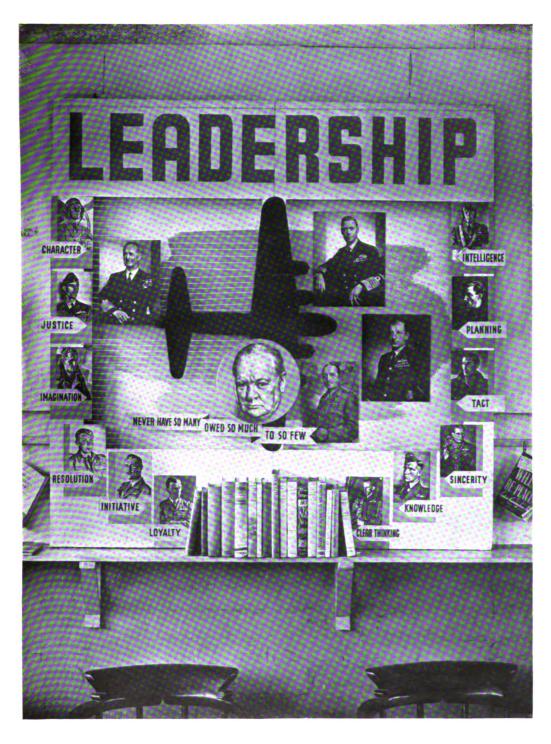
The first practical step which is suggested by experience is a wholesale reorganization of the educational service and a new conception of its function. Instead of being a barely tolerated civilian excrescence it must become an integral and essential part of Service life. It must be conscious of the aims of education and must be given the tools without which the aims will not be achieved. Most important of all, it must attract men with a sense of purpose. There will be a need not only for education officers whose duties are largely confined to teaching, but also for education officers responsible for general education and cultural needs. These officers must be men of wide interests with a humanistic background. combining scholarship and culture with the "common touch," capable of stimulating the interest of officers and airmen alike. But the educational service, like patriotism, is not enough. Education is the concern of everybody, and especially of every officer. A frontal attack must be made on the sectional outlook, the outlook so frequently encountered in war-time, which regards bodies as the concern of the physical fitness officer, or, if unhealthy, of the medical officer, minds as the concern of the education officer, souls of the padre, and culture as nobody's business.

The need for a healthy body is not generally disputed. On the whole, adequate provision is made for Service personnel to keep fit, and the opportunity given to take part in all forms of sport. Two points however suggest themselves.

Organized sport, although admirable in itself, tends to attract the minority who are good at games. This difficulty can be overcome in part by a greater variety of games and the encouragement of intersection matches equally with Station matches. There will still, however, be many left out of all games by their inability or lack of desire to get into a team. "P.T. while you work " has proved an excellent way of encouraging everybody to keep fit. Furthermore, when a half hour's P.T. comes as a break in the day's routine it is popular and, by relieving mental fatigue or boredom, increases efficiency.

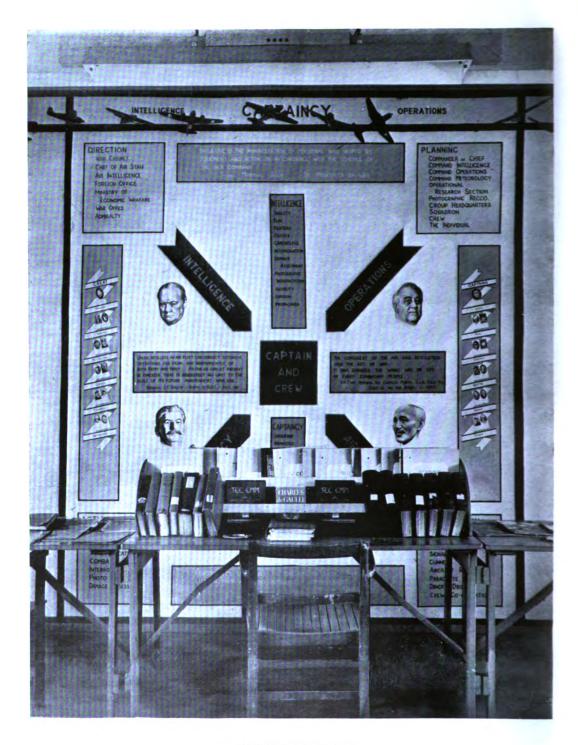
#### A STATION HEALTH CENTRE

The other sphere of possible progress in physical education is in the relationship between the medical and physical fitness branches. There should be greater co-operation between the two. At present the attention of the medical officer is concentrated mainly on ill-health. His section



A "LEADERSHIP" PANEL

"where by pictorial and other means attention is drawn to the qualities of good leadership and comradeship."



A "CAPTAINCY" SECTION

<sup>&</sup>quot;devoted to the conception of a good captain of aircraft and the importance of fostering the crew spirit."



Left — NEWS ROOM PANELS —
"Parliament Corner," which "has
for its object the stimulation of
interest in our democratic institutions."

Below — ARTS AND CRAFTS —
"Art and all forms of handicrafts are other activities which, besides having their special educational value for the individual, can also make their contribution to the Service community.





NEWS ROOM. "A centre for cultural activities where the 'mental climax' of the station can develop."



NEWS ROOM.

"The News Room is, as it were, the projection into a room of a good newspaper with the object of satisfying immediate intellectual curiosity and stimulating interest in subjects which can be pursued by individual and group study."

on a station is known as the sick quarters and an airman normally goes there only when he is ill. How much better if every station, instead of a sick quarters, had a health centre! The Peckham Health Centre has shown the way. Co-operation between the medical and physical fitness branches could produce such health centres, at which one would find a combination of the facilities at present provided in the gymnasium and sick quarters. Every advantage would be gained from laying the stress on health rather than sickness, and regarding the doctor as the man who keeps you well rather than the man who tries to cure you when you are ill.

The outstanding athlete will always be the object of admiration and emulation and it is right and natural that this should be so. The production of individual "stars" or match-winning teams must not however be allowed to destroy the balance of general education, of which physical education is an integral part. The object should be to encourage all to regard physical well-being as complementary to mental and moral well-being, and not as a substitute for it. Physical education can make no contribution to the brave new world by merely producing muscle-bound morons. In an educated society every "hearty" would be an "aesthete" and every "æsthete" a "hearty."

Goering once said, "When I hear the word culture I reach for my gun." The English were shocked at this confession more from their hatred of violence than from love of culture. In the Royal Air Force there is a natural temptation to regard education mainly as an adjunct to technical training. There is a tendency to judge the educational service by its success in making men into efficient extensions of the machines they operate. That the aircraftman should have the necessary knowledge to be a good fitter is rightly regarded as a matter for the Service, that he should have a "habitual vision of greatness" would be considered by many a frivolous irrelevancy. Nor is the failure to understand the meaning of education confined to those who are outside its ranks. It was an educationist who, after reviewing a wide variety of successful cultural activities, said that as far as he could see there was no "education" being done.

#### THE NEWS ROOM

In spite of the obstacles, and in war time the "passive barbarians" have unique opportunities for obstruction, significant developments have already taken place. On the war-time R.A.F. Station limited homage was paid to education by the establishment of an education officer. Homage did not go much farther as there was

usually no centre for his work. Putting first things first, the initial practical problem has been to provide a centre for cultural activities where the mental climax" of the station can develop. The problem has been tackled by the provision of news rooms. It was recognized that education begins with environment, and that barbaric surroundings will breed barbarians. It was therefore decided that the news room should be both comfortably furnished and pleasing to the eye. Attention has been paid to the choice of colours in decorating these rooms and the artistic talent on stations has been freely used to secure a high standard of display and design. The object has been to make the news room the pleasantest room on the station. Experience has shown that the influence of environment produces immediate results. Large numbers of airmen and airwomen use the news room, and almost without exception they show respect for a room which demonstrates that they themselves are respected.

Because names are important, the term "News Room "has been chosen deliberately. The news room is, as it were, the projection into a room of a good newspaper with the object of satisfying immediate intellectual curiosity and stimulating interest in subjects which can be pursued by individual and group study. It is the attractive entrance hall to the Temple of Knowledge, of which the library is the inner sanctum. " News " is interpreted, as in the best newspapers, to include all aspects of human activity—the arts, drama, music and poetry as well as current affairs. In the arrangement of displays and the provision of books and pamphlets, the immediate appeal of the topical is fully recognized, and a considerable amount of wall space is devoted to temporary exhibitions of general and current interest and to maps of the war fronts, brought to life by daily adjustments of the battle fronts and "taping" to the current news. With the aim of emphasizing a particular idea, permanent displays or "panels" have been developed. One such panel, called "Parliament Corner," has for its object the stimulation of interest in our democratic institutions. The central feature of this display is a striking night photograph of the Houses of Parliament. The most important literature in "Parliament Corner" is Hansard, a work which often contains much delightful reading, but one somewhat dull in outward appearance which needs to be "sold" to a generation whose reading has been confined to the more easily digestible snippets of the popular Press. The news room, like the newspaper, must sell its wares, but its guiding principle will be truth, not sensation.

The vital importance of the educational in-

fluence of environment needs to be stressed because unthinking people may dismiss display and design as "window-dressing." If the Service is to become a spearhead of culture the whole physical environment of a station must aid and reflect this ambition. The way has already been shown by the provision of a N.A.A.F.I. Club on certain stations. The contrast with some N.A.A.F.I. canteens is sufficiently striking hardly to need stressing. The principle must be carried further. People cannot be taught to love beauty if they live among ugliness. A regard for colour in decoration in place of the old "green" or "brown," design in furniture, choice of pictures, the architecture of permanent buildings, the pattern of uniforms—all these things are important.

During the war, with so many Allied air forces and armies in this country, it has always been possible to obtain literature and display material for the news room to stimulate interest in a particular country and present that country's point of view. It would surely be disastrous if existing contacts were broken after the war. Indeed, they might well be extended by direct contacts between the Royal Air Force and the Flying Services of other countries, so that the news room could become an international exchange in the currency of culture and ideas.

The idea of the news room could also be applied to civil life in this country by the provision of such rooms in towns and villages. These might be called "News Halls" and could form the nucleus of community centres. These news halls might well serve as an appropriate form of war memorial, and by association with news rooms in their respective activities would provide a social and cultural link between the Service and civil community in the post-war world.

The news room, besides being a passive influence as a good environment, is also a place where things happen. It is not only a room in which people sit and look and read, it also provides in one place the information required by discussion group leaders and the members of groups, and is the centre for the voluntary cultural activities of the station.

#### DISCUSSION GROUPS

The adoption of discussion groups by the R.A.F. has been a significant educational development. For the first time the general education of all ranks, including their political education, is recognized as a Service commitment. This is a revolutionary departure from the previous negative policy of banning politics from the Service. Like all English revolutions it is a compromise. Party politics are avoided, but the great political issues of the day are accepted as proper

topics for discussion between officers and ther men. Mass political instruction, previously the monopoly of the totalitarian states, has been adapted for the purposes of democracy. But it is easier to tell people what they must believe than to encourage them to form their own reasoned opinions. The very conception of a compulsory discussion group is a paradox. It is not easy to compel people to exercise their rights of freedom of thought and expression if they have no regard for those rights, and yet it is the very difficulties of the task which emphasize its necessity.

What are the difficulties? First there is the altogether genuine belief among many that discussion groups are a waste of valuable time. This view is most strongly held by those who fail to see the purpose of education. Wellington described his soldiers as "the scum of the earth enlisted for drink," and in his time flogging was the chief method of maintaining discipline. Those who advocated the abolition of flogging, not merely on humanitarian grounds but also because they believed better treatment would produce a better army, were decried as impractical visionaries; and yet no one to-day would recommend the reinstitution of flogging in the interests of efficiency. A further stage in the development of the Fighting Services was marked by a greater attention to the food, comfort, living conditions and physical welfare of the troops. Again. pioneers were accused of ruining the men by pampering them. To-day we are becoming increasingly concerned with the mental well-being of the men and women in the Services so that some can even look forward to the Services being in the vanguard of culture, the shock-troops of national regeneration. This conception is a natural development, but like all other stages of progress it has to meet and overcome the opposition of the men of limited vision, "the passive barbarians," to use the harsher term.

Some decry discussion groups because they cannot see their purpose; others deny the value of a task which they themselves feel incapable of carrying out efficiently. Both problems have, however, been approached in a practical way by the organization of courses of instruction for group leaders at which both the aims and methods of discussion groups have been expounded, but there is no quick solution to the difficulties. The eternal battle of culture against the forces of barbarism is a war of attrition and not a "blitzkrieg."

If there is a failure to appreciate the purpose of the discussion group there is also objection to the method. Here substantial arguments can be advanced. There is real difficulty in discussing economic, social and political problems with a

group of extremely limited background. We uffer from the disastrous shortcomings of an educational system which disgorges the vast majority of the nation at an age when the privileged few are just beginning to learn something of the world in which they live. Discussion groups are supplemented by lectures given by authorities on the subject for discussion. Such lectures are of value to those mentally equipped to profit by them, but it must be freely admitted that they can be of little or no value to men and women whose thought, knowledge and interest are limited to the personal and immediate aspects of their own life.

In spite of the obstacles, in spite of the inevitable limitations, the development of discussion groups has been pressed forward in the faith that they will achieve, and to some extent already have achieved, two objects. The first is to create a closer relationship between officers and their men. Such a relationship is essential for an efficient Service, vital for a community which desires to live in harmony with itself. The second is to stir the intellectual soil which has lain fallow and sterile during the frustrated years of unemployment and political apathy. Discussion groups will not automatically create responsible citizens, but at least they have drawn attention to the need for responsible citizens. Even their most violent opponents have been led, in their opposition, to discuss subjects in which they had not previously shown conspicuous interest.

In a discussion group airmen and airwomen express their views on the kind of world in which they want to live. But the world in which they are living is their own station. It is essential that their station should set an example of good community living in which the individual has rights as well as duties. Nothing could be more futile than discussing social justice in the abstract on a station where justice was denied or not fully recognized. The Station Welfare Committee is in effect the practical discussion group. At its meetings no reasonable complaint should be unanswered, no practical and constructive suggestion shelved. It is equally important that the Welfare Committee should not be a mere central registry of complaints, but an active body of station personnel prepared not only to talk but to work for the general good of their community.

## THE NEWS ROOM CLUB

The education of the individual in harmony with the community is a fruitful field for future exploration. In the sphere of physical education and character training this country has shown a greater understanding than most. The "team

spirit" and "honouring the game and not the prize" may have become music-hall jokes, but this is only because they have been so completely built into the pattern of our national life that we can afford to laugh at them. It is the penalty of the successful reformer that his most enlightened ideas become the *clichés* of the next generation. Intellectual co-operation is less well understood. In connection with the news room the News Room Club has been developed, a body drawn from all ranks, of personnel who co-operate in maintaining the News Room, designing new displays, making fittings, mounting maps or even painting tables and sweeping and tidying the room. In addition, the News Room Club acts as a committee of management for the voluntary cultural activities associated with the news room.

One such activity is the Music Circle, which begins by playing the records of classical music supplied by E.N.S.A. once a fortnight. Nearly every Music Circle supplements the E.N.S.A. records with others belonging to members and is able to have a concert once a week. The next stage of development has naturally been the arrangement of "live" concerts and it has been found that the more often such concerts can be given the greater following they get. In peacetime there will be better opportunities to encourage an appreciation of good music and the drama. In order that the Services may enjoy the best cultural influences from civil life such organizations as E.N.S.A. and C.E.M.A. should continue after the war when they will not suffer from their present inevitable limitations. The more the present links between the Services and civilian society can be retained and others created, the more each will understand and influence the other.

Art and all forms of handcrafts are other activities which, besides having their special educational value for the individual, can also make their contribution to the Service community. Artists on stations have decorated the bare walls of war-time huts with murals and demonstrated that even the interior of a Nissen hut can become a thing of beauty. Handicrafts are encouraged by the organization of exhibitions so that the work of individuals is displayed for the pleasure and instruction of all. Many additions to the amenities of stations are made by personnel who have learnt in the Service to become amateur craftsmen. Work of this kind creates an awareness of colour, design and beauty in every-day surroundings and also a spirit of service to the community. An æsthetic team can be created no less than a football team.

Voluntary intellectual activities on stations often meet with a disappointing response. This is

largely due to the fact that educationists are content to rely on outmoded techniques. An example is the lecture. A first-class lecture can be an inspiration, but how many lectures are first-class? And meanwhile the world of entertainment has developed new techniques which can be made the instruments of education. For example, one station runs a weekly "News Room Feature Programme," in which the technique of radio entertainment is freely used. Instead of a lecture on the month's news, which would have little appeal, a "News Scrap Book" is produced by the News Room Club. Different voices speak the various items of news, the serious is followed by the incongruous, appropriate music from gramophone records provides a background, and the result is a contribution to general enlightenment which is accepted as entertainment. The most successful of all these programmes is "In Camp To-night," the title obviously and deliberately taken from the radio entertainment programme "In Town To-night." The programme started with the education officer interviewing officers and airmen, three or four in one evening, about their experiences and opinions. It was at once a popular success and has now developed so that "lecturers" are invited, not to lecture, but to be "interviewed." At the end of each interview the audience asks questions and lively discussions follow. The programme has variety, as several people are interviewed on different topics, and it has the interest and amusement derived from the interplay of two minds. Finally, it attracts three times as many people as a lecture without in any way lowering the educational standard.

Another station, in an entertainment called "Studio Night" puts on an entirely new performance every fortnight by the simple but effective device of creating the atmosphere of a broadcasting studio and performing each item from scripts before a microphone. All the scripts are original and written by station personnel. A majority of the items are lighthearted and witty comments on station life, but others are more serious in intention. Interviews under the title "Split Personalities," "News Scrap Books," readings of poetry adapted and disguised as "Poets' Pub," dramatised versions of history and current affairs have all been included in this programme. A "Studio Night" Club manages the show, writing scripts, arranging music and making scenery.

Some of the academically minded may be shocked at the mention of "shows" and entertainment in the same breath as culture and education. This is because they do not fully understand the problem of adult education. In the twentieth

century, culture armed with a bow and arrow cannot win the fight against barbarism. Education is damned if it is dull. The outstanding example of the technical backwardness of education is its failure to make adequate use of the unique opportunities offered by the film. It is to be hoped that in the future the educational service of the Royal Air Force will not only have a projector on each station to show films of educational value, but will also make its own films. Again, it must be remembered that outside the sphere of vocational training educational films will fail, and deserve to fail, if they do not appeal as entertainment. Dullness is the result of incompetence and it will not mitigate failure to plead the highest motives.

The entertainment approach to education has been stressed because where it has been adopted with sufficient skill and imagination it has never failed. It is the method by which the many may be led painlessly to things of the mind, and general standards of taste and intellectual values raised. "In Camp To-night" may seem a far cry from a "habitual vision of greatness," but it can be an important practical step in that direction. Scholarship demands concentrated and prolonged mental labour. Leaders of culture must always be prepared for such labour and the Service must make the best possible provision for their needs. It cannot, however, afford to concentrate on the few, and it is in approaching the many that the techniques of education need drastic revision.

In addition to voluntary cultural activities the R.A.F. should accept general education as a Service commitment in peace-time by the continuation of the discussion group scheme, and its amplification by means of films and lectures given in Service time. The men of the Services will be "free to devote all their spare time, if they choose, to the study of culture," but S. P. B. Mais has pointed out that the operative words are "if they choose."\* They must be given help in making the choice, and if education is limited to voluntary activities it will be hard for the individual to accept as essential something which the Service appears to regard as less important than a parade or kit inspection.

## "BASIC CHRISTIANITY"

The reasonable satisfaction of material needs, bodily health and intellectual development, all necessary in themselves, are vain without a sense of purpose in life. The chief failure of education in the modern world has been its failure to create that sense of purpose. In former times belief in the dogmatic creeds of organized religion sup-

<sup>\*</sup> See R.A.F. QUARTERLY, Vol. 15, No. 3.

clied the need. We have rejected the dogmas, but its Bernard Shaw has said, "in throwing out the eath water we have thrown out the baby as well." The need for a unifying purpose in life is so undamental that evil secular "religions" like Nazism have filled the vacuum created by the rationalists.

Many recognize the dilemma of modern ociety but few can propose a satisfactory soluion. The churches look for a revival of belief in logma, but they are like the man who wishes o abolish the aeroplane or return to hand-loom weaving. We must take mankind as it is and create a standard of values on a common basis of belief. "Basic Christianity" is defined by H. D. A. Major in a recent book\* as "the most fundamental universal and needful elements in historic Christianity expressed in the simplest and clearest terms." The analogy is drawn with Basic English as an example of the simplification necessary for universal appeal. We have largely disregarded, but never rejected, the ethics of Christianity, and so Basic Christianity offers us generally acceptable values and a clear purpose unclouded by controversial dogmas. In the past, lip-service has been paid to the Christian creed while Society has openly flouted the Christian way of life. Since we have perforce lost the old faiths it is only by living like Christians in a society which demonstrates the Christian virtues that we may discover our new beliefs.

The Service has special advantages in leading the country in Christian living and moral education, but not if it considers the problem solved by a Sunday morning church parade. A unit in the Royal Air Force is a community which a modern town is not. It already practises some of the Christian virtues by training and example in courage, self-discipline and the idea of service for the general good. Much has been done and far more remains to be done to develop good community living. The necessities of war have produced the "self-help" scheme which by organizing parties of officers and men drawn from all sections to work for the benefit of the station as a whole, thereby encourages and develops a sense of common purpose. The Welfare Committee, which has been quoted as a practical discussion group, can also be an example of practical Christianity as it becomes more and more a body of men who, regardless of rank, work for the common good and not to gain some advantage for themselves at the expense of others. The News Room Club and similar bodies can serve the same purpose. The purpose has been recognized by encouraging airmen who have been on the

"moral leadership" courses organized by the various religious denominations to make their combined contribution to the station as members of the News Room Club. In this way the news room can become a moral as well as an intellectual influence.

The distinctions made between officers and other ranks for disciplinary purposes are necessary and desirable, but it is important that distinctions of rank should not produce a divided community. Sport and other entertainments and activities, at which all ranks participate, can be an important contribution to good community living. The pleasant and friendly association of officers and other ranks in station activities increases respect and hence improves morale and discipline, besides helping to develop the corporate spirit of a united community.

Among flying personnel the crew spirit at its best provides an outstanding example of the Christian virtues of selflessness and devotion to duty. That example is an inspiration to others and it is a spirit which should literally be brought down to earth.

The purpose and meaning of life will be discovered more by the way we live than by the beliefs we profess, but moral education must include a constant search for truth. The discussiongroup method is an instrument here to hand. During the Sunday Church Hour a discussion preceding a voluntary service has already had considerable success. Such a discussion, not restricted to the members of any one denomination, can be taken by the chaplain of any denomination or by a layman officer. In these discussions a completely free, open-minded and critical approach to religious questions has been encouraged. To indicate the possible scope of discussion, to stimulate thought and provide material a paper entitled "Human Ideals or a Way to the Fuller Life" has been provided. At the same time the visual approach to moral education has not been neglected. In Intelligence Libraries for aircrew a "Captaincy Section" is devoted to the conception of a good captain of aircraft and the importance of fostering the crew spirit. Biographies of leaders of thought and action and examples of good captaincy are provided as an inspiration. In the news room there is a "Leadership " panel where by pictorial and other means attention is drawn to the qualities of good leadership and comradeship. "Religion and Life" is the subject of another panel. Here man's upward striving is symbolized in a picture of the dome of St. Paul's Cathedral rising from the smoke and flame of the fire blitz. Associated with this panel is current literature which approaches the problems of religion in a spirit of honest inquiry

<sup>• &</sup>quot;Basic Christianity," by H. D. A. Major. (Basil Blackwell.)

rather than dogmatic assertion. By this undenominational approach to religion all can play their part, irrespective of creed, in giving effect to practical Christianity in their daily Service life.

#### "THE FULLER LIFE"

Stress has been laid on what has already been attempted in physical, mental and moral education, not because it is imagined that a complete solution has been found to the educational problem, but rather to show how "Education for Living" can be applied in practice to Service life. Such small beginnings indicate the path of future progress. Human happiness comes from

harmony; from a balance between the physical, mental and moral aspects of life and the recognition of the ultimate value of moral aim and purpose. True education can only be achieved by the co-operation of all who have the vision to see the need. It will not be achieved by identifying education with vocational training and relegating it to the classroom. The Service can, if it has the will, become "a positive instrument to promote culture." It can, if it has the will, give to the nation an example of harmonious and balanced living in which the individual, finding purpose and achieving self-expression in service to the community, learns to lead a fuller life.

# Sir Richard Livingstone on "Education for Greatness"

I agree too completely with Squadron Leader Ginnett's views\* on the problem of civilization to criticize them; so treating them as a text I will try to put down some of the ideas

they have called up.

We are gazing towards a horizon over which, sooner or later, a world will dawn far more difficult than our present one—the world of peace. It is pleasanter to live in peace than in war, but it is far harder. In war one has so little choice; purposes and actions are determined by circumstances: life may be hard but it is simple; we follow a straight narrow road with few chances of wandering; controversial questions are shelved rather than solved; a common danger unites the different classes and interests in the nation and creates or compels general agreement on a common aim. Peace comes: the common aim is achieved, agreement is relaxed, and suppressed differences break out. Life becomes complex again. Shelved questions raise their heads. The Services and the Ministry of Labour abandon their control and we are left to our own devices: no one directs us and we have to make our choice from a perplexing variety of roads. How shall we find our way? How shall we achieve national unity by finding the common purpose without which advance may be frustrated and certainly will be slow?

#### THE POST-WAR WORLD

Three kinds of post-war world are possible. We may have a world of social, economic and political confusion, or even chaos, in which democracy will be lost and dictatorship embraced as the last hope of ending disorder: something of the sort happened in Germany in 1933. Such a world will probably end in a war for which the chemists and physicists will by then have provided weapons effective enough to destroy civilization completely. Or we may have the kind of world which Squadron Leader Ginnett calls "passive barbarism," a peaceful world of low standards. There is a third possibility; we may have the world of our dreams, or at least close to them. There are the materials for that world too, as for the others, in human nature: history is full of the people who belong to it and could have made it; there are plenty such alive to-day. and probably there are few human beings who have not somewhere in their nature the rudiments of the virtues that could bring it into being. How shall we achieve this third world?

To many people the answer to the problem is: Devise the right political machinery. For foreign relations—Federal Union, or an improved League of Nations, or co-operation between the great powers (between 1919 and 1939 it was the League of Nations, disarmament). At homedemocracy or socialism or communism; economic planning, a Beveridge Plan. One thing is certain; if we put our faith in these and similar expedients we shall be disappointed. The evils of the world do not come, except in a minor degree, from bad political machinery, and will not be cured by improving the machinery. There is a saner philosophy of history in the Epistle of St. James: "From whence come wars and fighting among you? Do they not come from the pleasures that war in your members? You desire and have not; you kill and covet." Bad human beings mess up the best political machinery: good

<sup>\*</sup> See article by Squadron Leader Ginnett in R.A.F. QUARTERLY, Vol. 15, No. 3.

ikely to improve it. Here is our great political allacy—concentrating on machinery and failing o train persons to work it. There is no prospect or hope of peace abroad or of the good life at nome, unless a majority of people have the will and the character to achieve peace and the good ife. "Education," as Ruskin says, "does not nean teaching people to know what they do not know. It means teaching them to behave as they do not behave." How much of our education is of that kind? How far is it devoted to that aim? Since 1939 we have had an education in behaviour which may have done little for our knowledge or brains, but has had a powerful and beneficial effect on our characters. It has been given outside our schools and universities and by a rough teacher—the war. Britain to-day—as Ginnett in effect says—is a better country than it was in 1939. There is infinitely less "passive barbarism." If you look around, you will still see some of the littleness of man, but you will see far more of his greatness, in both sexes and in all classes and ranks of life. That surely is suggestive and instructive. If we note what has given us this new spirit in war, we might devise means that would keep it alive in the difficult world of peace. The education given by war is twofold. War does two things. It imposes a great common purpose on a nation, which burns up minor and meaner forces in its consuming flame. And it imposes the attitude and conduct which result from a common purpose. People really feel as if they were members one of another. The nation becomes something like a society—a band of companions; in fact, it becomes a nation. What lessons can our post-war education learn from the schoolmaster, war? How can we retain in peace these two things which war has temporarily taught us—a great common aim and the spirit of fellowship? What can education do to help us here?

ones can make something of the worst, and are

# THE SPIRIT OF FELLOWSHIP AND CO-OPERATION

First the spirit of fellowship—which is the spirit of citizenship. In the past we have made practically no deliberate attempt to train people in this virtue. But accidentally and unconsciously we have evolved an instrument for creating it—the residential school. Put a number of people to live together, and automatically and in their own interest they will tend to develop the rudiments of citizenship, for life will be intolerable unless they can learn to live together; and they cannot live together unless the individual puts some check on his assertiveness and is prepared to play his part as a member of the team. The resi-

dential school, in its own interest, imposes certain virtues on its members—fair play, co-operation with others, some sense of loyalty to a larger whole. The careerist, the egotist who plays for his own hand, are discouraged and broken into living in a society. So the boarding-school does in one way what war does in another: it develops the spirit of fellowship, it trains people in citizenship, in the art of living in and serving a community.

But at present only a tiny fraction of the nation receives such a training. Our business is to see that all receive it. We may increase the number of our boarding schools, and see that existing ones are not confined to the well-to-do. Dayschools may develop boarding houses which boys can attend for part of their school career. School-camps and camp-schools may increase. The nursery school trains children in the habit of living in a society. The Young People's Colleges in country districts are likely to take a residential form—the student attending continuously for six or eight weeks in the year, instead of one day a week. The Youth Movement is a great instrument for training in citizenship. Six months' national service for all would have the merit of bringing all classes of the community together in residential life. Residential adult education will give similar opportunities at a later stage. It is, I would insist, through living and working together in common that the spirit of co-operation, which war produces in other ways, can best be engendered in peace. If you do not like my appealing to the influence of the boarding-school, the Danish People's Colleges for Adult Education will give an example. They created the spirit which made possible the Co-operative Movement in Denmark. The young farmers lived together in these colleges; living together they lost the suspicion of each other which has often wrecked attempts at agricultural co-operation, and learnt to work together for a common good.

This then is the first stage of training people to behave as most of them do not naturally behave. In it they learn some at least of the qualities necessary to live in a society by actually living in one: they are trained in a small rowing-boat to be good members of the crew in the great vessel in which the human race is embarked, and learn that the voyage will be swifter and smoother if they co-operate instead of quarrelling.

#### A COMMON IDEAL

But this is only the first stage in the training of a citizen. Stop here and you will have taught him the elements of social seamanship, the rudiments of citizenship, but you will have given him no idea of navigation, of the harbour for which the ship of society is bound or of the course which she must set to reach it. That too must be taught. Otherwise you may have a society whose members have indeed learnt to co-operate, but to cooperate for wrong ends; as in bad boarding schools, where there is a common life and spirit but where, as we say, the tone is low.

Good citizenship is not enough. The Spartans in the ancient world, the Nazis to-day, are examples of admirable public spirit and self-sacrificing devotion to the State. Yet Sparta was not a high civilization, nor do we wish England

to become a second Germany.

That brings me to the most important task of education and one which in the main it

neglects.

People must know how to live and work together, but they must live and work together for right ends; they must therefore know what ends are right, and it is the business of education to show them such ends, and so give them an ideal to rally, unite and inspire them. The war has given us such an ideal, has indeed forcibly imposed it. We are fighting for our life, but also for freedom and justice and the values which compendiously we call Christian; and for the time private differences are hushed, internal factions silent and the nation is united. How can we find such a common ideal which will unite us when peace comes?

In his "Republic," Plato has sketched five types of states and individuals differing according to the ideals which rule them. First are the state and the man ruled by wisdom: and wisdom to Plato is near to what we understand by the word religion. To him it is an insight into "that which gives light to all things, the Good." Second are the state and man ruled by the desire for honour. There is something of this "timocracy" in mediæval chivalry, something in the French la gloire, something in 18th century English aristocracy, something in the Nazi and Fascist ideals at their best. Third in the scale are the state and the man ruled by money—the plutocrat and the plutocratic state: these need no illustration. Fourth come what Plato, thinking, not of the democratic ideal, but of Athenian democracy as he knew it, calls the "democratic" state and man: the state and man who are ruled by no clear ideal and accept no fixed standards. who are sometimes good, sometimes bad, as the impulse or need of the moment dictates. Ibsen's "Peer Gynt" is exactly what Plato meant by the democratic man. Finally, and lowest of all, is the

state ruled by a single tyrant, the life enslaved to a single passion. Of the tyrannical state Nazi Germany is the best example in modern Europe, and much of Plato's account of the "tyrannical man" could be applied verbatim to Hitler.

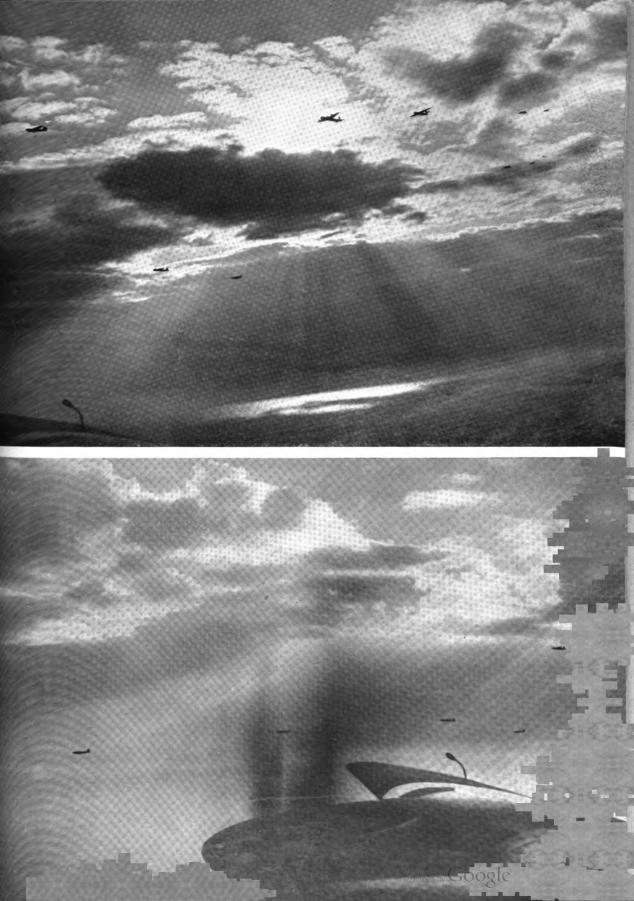
Plato, for clearness sake, isolates the different ideals which may rule states and individuals: in life they are commonly mixed. Human nature is composite, rarely pure. But this analysis of states and individual lives seems to me exhaustive, and in it we can see something of ourselves, of our weaknesses, dangers and possibilities. We can trace in Britain elements of what Plato meant by timocracy, plutocracy and "democracy," and of "wisdom." Our practical problem is to increase the last of the elements. How is it to be done? That is the greatest task of education.

#### THE FIRST-RATE

Education will perform the task if it shows to those who pass through its hands, as children. adolescents and adults, the first-rate in as many fields of life as possible. Everywhere and in everything the first-rate is a possibility. There is a first-rate in dress and cooking and gardening. in cricket and chess, in every occupation and profession, from carpentry to aeroplane design, from banking to medicine, from engineering to teaching, in art and radio, films and drama, music and literature, in administration and politics, in character and conduct—in every activity of man. And the first-rate attracts people—once they have grasped the idea, once they have seen the reality. It is natural to human beings. Few people are content with the second-rate when they have seen something better, and there can hardly exist a person who does not wish to do something as well as it can be done. Some covet—and achieve the first-rate in football, some in painting, some in housekeeping, some in surgery, some in sailing. The human ambition to excel varies infinitely. but in all men some instinct to excel exists. Education should develop this instinct for each of us along as many lines as our capacities and circumstances allow.

What would be the results? First, we should know our aim; and human failures are quite as often due to ignorance of good as to slackness in pursuing it. Then we should have, what the war has given us, an aim transcending our differences round which we could rally and on which we could unite. We should still differ about means—about the respective merits of Liberalism and Communism, of state management and private enterprise, but there is less room for difference about what is a first-rate country; and when men really agree about ends, it is easier to arrive at an agreement or compromise about means. It is

<sup>\*</sup>Book 8. The best edition of the "Republic" for English readers is Professor Cornford's translation, with introduction and notes.





AN OBLIQUE AIR PHOTO OF THE CHERBOURG PENINSULA TAKEN BY A COASTAL COMMAND AIRCRAFT FLYING OVER THE ISLAND OF GUERNSEY.

along these lines of higher standards, of clearer perception of the first-rate that England has already improved. Take one simple example. Contrast the houses, fabrics and dress of the middle classes in the Victorian age and our own. The improvement is due not to our having more money to spend but to our having better taste: we have in these fields a clearer idea of the firstrate. Or contrast Victorian ideas about an industrial town with our own. They built back to back houses; we view them with horror, not because we are more virtuous than our grandfathers but because we have a clearer idea of good housing. It was not mere wickedness that produced ribbon development, unplanned cities, and other atrocities, but the ignorance of a public that tolerated such things because it knew no better. Rising standards, a growing perception of the first-rate, are struggling to free us from the burden which this ignorance has laid on us. When our sense of what is first-rate has risen as high in individual conduct and in national life as in silk and cotton fabrics or in motor engineering. we shall be a really great nation.

When education takes in hand this part of her work—a task of revelation rather than of instruction—teaching her pupils how, in the vast storehouse into which they are born, to distinguish diamonds from paste, gold from gilt, rich jewels from coloured glass, at what should she aim? She should aim at putting into their hands a magic touchstone, which will help them to discriminate, by showing them the first-rate, so far as she knows it, in as many fields as possible, but especially in certain fields which belong to every human life. Everyone should know the best in the field of their occupation and have standards in it. Everyone should know the best in the field of their leisure (and surely Aristotle's conception of leisure is near the truth, that it is something different from the recreation needed for refreshment after work, that it is the time, earned by work, when a man is free to follow his own bent; by his use of it his character is revealed and judged). Art in its many forms, music, drama, literature, are all within the field of leisure. Then, too, a man should know what is first-rate in social life, what is the ideal community, what he would make if he was an artist, free to create the perfect England. Everyone should have his vision of a practicable Utopia, so that in his own sphere and measure he could contribute to making it. Finally, everyone should know the first-rate in human character and life. That is clearly the most important of all.

If you wish to teach people what is first-rate in painting or architecture you show them pictures or buildings which are first-rate. So, too,

with character. You show them specimens of it at its best. You show living specimens, if you can; the most potent influences in our lives are the first-rate people we have met in school or out of it-not least among our teachers. How often in a crisis or in moments of leisure our thoughts go to them, whether they are living or dead! But because first-rate people are not always available on the spot, or at any rate not available in sufficient number or variety, we must have recourse to the great storehouses of them in literature and history. In literature, of which S. P. B. Mais wrote admirably in your last number, we see, sifted and approved by the judgment of time, the first-rate as it has hovered over the earth in the dreams and visions of men. and there study a philosophy of life more illuminating than that of most professional philosophers. In history we see the first-rate as it has actually walked the earth in human form; greatness and goodness (not by any means identical or always combined), nobility and wisdom, eminent above the evil, littleness, weakness and folly among which it moves and over which it towers. It is from this angle (as well as from others) that literature and history should be taught—as revelations of the first-rate in human life. In a sense no doubt the first-rate is never known, because human progress is never complete: the river winds on, revealing fresh landscapes with every turn of the stream, to an ocean far beyond our view or ken. But let us at least see the best, so far as it is within the range of our vision at the moment.

The study of the first-rate—that surely is, or should be, the natural aim of all education, when it passes beyond the elementary stage. If you are learning to write Greek prose or to play a game, you study the best ways of doing it. In his technical training, the surgeon, the engineer, the artisan, is shown the best practice in his craft, as the mark at which to aim. So, too, it should be in the infinitely more important technique of living; the boy or girl should leave school knowing the first-rate in character and life, with a sense of the craftsman's ideal and of craftsman-ship in these fields too.

It may seem odd that, dealing with such subjects, I have not mentioned religion. But, of course, religion is integral to the study of which I have been speaking. For in it spiritual greatness is revealed, carried to so high a power that it draws the world after it and moves not only contemporaries but posterity, not only the country of its origin but men of every race and land. One can hardly conceive a lower depth of folly than the proposal to exclude religion from education or failure to give it a large place there (unless, of



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along these lines of higher standards, of clearer perception of the first-rate that England has already improved. Take one simple example. Contrast the houses, fabrics and dress of the middle classes in the Victorian age and our own. The improvement is due not to our having more money to spend but to our having better taste: we have in these fields a clearer idea of the firstrate. Or contrast Victorian ideas about an industrial town with our own. They built back to back houses; we view them with horror, not because we are more virtuous than our grandfathers but because we have a clearer idea of good housing. It was not mere wickedness that produced ribbon development, unplanned cities, and other atrocities, but the ignorance of a public that tolerated such things because it knew no better. Rising standards, a growing perception of the first-rate, are struggling to free us from the burden which this ignorance has laid on us. When our sense of what is first-rate has risen as high in individual conduct and in national life as in silk and cotton fabrics or in motor engineering, we shall be a really great nation.

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course, you believe it false). It is natural for each child to be brought up in the religion of its own family or country. The idea of teaching children or adolescents comparative religion, puzzling them with distinctions that adults find difficult to understand or judge, is as sensible as attempting to teach them their own and half a dozen other languages at the same time. Pigeon English, pigeon religion, are likely to result.

In an essay called "M. Renan and France" Mazzini discussed the cause of the French collapse in the Franco-Prussian War. He attributed it to two reasons. The first is "the fact that intellect has so far outstripped morality in its advance." The second is that the theory of Rights, central in the French Revolution, "insinuates the seeds of egotism into the hearts of men by the false definition of life as a search after happiness." Such a theory is "incapable of founding society anew upon a durable basis." What Mazzini wrote in 1872 is equally true today. A society is only secure when its members accept ideals higher than themselves, above their

immediate personal interests, by which they are guided and to which they can appeal when diferences arise. That alone can unite a nation Such ideals—honesty, courage, justice and mercy (especially in their characteristic English: forms of fair play and kindliness)—do move E national life, and, so far as their influence extends, it rises towards the first-rate, in which they are elements. The war has imposed on us a more comprehensive and compelling ideal than we accepted in peace; we recognize it; for the pass five years we have been governed by it; it has united us; and when differences have arisen we have got over them by considering what "the war effort" demands. After the war we shall need an ideal of the same character which we can all accept. We can find it in the attempt to create a country, and with others, to create a world, which come nearer to the first-rate than our world of yesterday.

Yours sincerely,

R. W. LIVINGSTONE.

# The Flowers of Oppression

By Squadron Leader Patrick de Mornay

"Go, my songs, to the lonely and the unsatisfied, Go also to the nerve-racked, go to the enslaved —by convention.

Bear to them my contempt for their oppressors.

Go as a great wave of cool water,

Bear my contempt of oppressors.

Speak against unconscious oppression, Speak against the tyranny of the unimagin-

ative, Speak against bonds . . . "

Land "to him, described Ezra Pound as "il miglior fabbro." Whether this judgment is right or not, Pound's stature amongst poets and his sensitivity and feeling for the suffering of others cannot be denied. The whole of his poem, "Commission," elaborates the theme of its first eight lines: bear my contempt of oppressors. Later in the same work he reiterates it: "Be against all forms of oppression." And yet Pound himself, who charged his songs with those high ideals, has openly aligned himself with Italian fascism, with the very oppression his words deplored.

Why? What strange twist in his mind can differentiate between one form of oppression

and another? Or do his words say this while his heart believes the reverse?

If they do, then he is an unusual writer. For oppression and an awareness of suffering has normally the opposite effect: Pound must surely stand apart as an exception.

In no creative work so much as in literature has misery been so fruitful of greatness. Not misery of the individual, but misery of the people, expressing itself through the pen of one man amongst them who can feel and interpret

that misery.

"Beauty is so akin to great pain. Who then not knowing suffering, can open their hearts to it?" It is a dismal thought for the materialist. What philosophical tenet is he to hold? That he is born to suffer, in order that his moments of happiness and beauty may be the sweeter? Alahis instincts say no, and yet out of a suffering people springs a beauty that would otherwise he hidden.

Let us consider what has been born from the oppression of the ten years leading up to the present war. Those years saw fascism already in full swing in Italy; the economic collapse of America; the coming to power of Hitler in Germany; the Chinese torn by civil war and the war

rith Japan; the Anschlüss; and the tragic farce f the Spanish Civil War. In all these countries the lives of millions of ordinary people were hanged to an extent that we have never known England. The future became something vague and shadowy, the secure past a memory. Only the present, with its strange and frightening unertainty, remained vividly alive.

France, on the other hand, knew nothing of all his suffering except at secondhand, and Engand, apart from a few valiant but ineffectual

oices, seemed to care not at all.

What, then, did this oppression—political, nilitary and economic—produce in the literary

ield?

Italy has yielded little in recent years that has any claims to greatness, but what it has yielded and this is the important point—has come from he pens and minds of those who fought against ascism. Those who gloried in Mussolini's regime, or even accepted it blindly for want of courage, have contributed nothing in literature that will live or have a lasting effect on the thoughts and emotions of the rest of the world. No fascist writer has created, for example, any work that compares with the combination of insight, humour and clear-headedness that goes to make Ignazio Silone's "Bread and Wine." Silone is an Italian who fled to Switzerland and has lived there for some years. He is anti-fascist, but that is not to say that his works are propagandist or that they inveigh exclusively against the creed that he hates. It is in that point that so much difference lies between the writers on the side of oppression and the writers against it, not only in Italy but everywhere.

Fascist, Nazi, and "capitalist" writers either ignore political and sociological questions and produce superficial work with little meaning, or they attempt, with a great deal of flag-waving and invective, to justify the ideologies for which they stand: the results are patently propaganda

and their arguments usually transparent.

Silone, on the other hand, discredits not only the harsh and reactionary programme of fascism, but also the unthinking and dogmatic creeds that are presented to the people by the revolutionary workers. His central character, in whose words Silone speaks himself, is eventually disgusted with the play and counterplay of dogma which constitutes so much of the struggle for "freedom," and the whole book concludes by advocating a new conception of human justice and liberties.

The same feeling animates the work of Steinbeck when, in such a book as "The Grapes of Wrath," he takes as his subject the almost hopeless predicament of a class who have done noth-

ing to deserve the horrors and misery forced on them by the economic depression in the United States, but have simply become pieces in a vast and inhuman game which has got beyond the control of the players. No political creed is going to alter the fate of the Middle West farmers or put food into their mouths: what is required once again is a realization of the need for a new faith in the brotherhood of man and an entirely fresh construction of society.

Anna Seghers, an anti-Nazi German and one of the most brilliant woman writers on the Continent, in a sure and moving story, "Der Kopflöhn," paints yet again the picture of the ordinary people. Although her plot is a political one and her sympathies are obvious, she can understand and pity the idealism of many of the young Nazis, and does not allow herself to be carried away by partisanship. For this is the distinguishing mark of these writers who have from the sufferings of the people produced work that is a monument to these people: that it is, first and foremost, the *people* in whom they are interested, in whom they see the real depth and greatness of a country, and it is only when those people suffer that their greatness comes to the fore and can be translated into words.

The Chinese and Spanish wars have produced writers amongst their own nationals, but perhaps the most impressive and lasting works have come from foreigners. Here again the contrast must be stressed: no writer of any magnitude has taken the side of the Japanese or the Falangists and created out of their struggles anything of beauty. But André Malraux, for example, a man of great personal gallantry and deep comprehension of human nature, has produced what rank amongst the greatest books of the betweenwars period on the themes of both the Chinese and Spanish fights for freedom.

In "La Condition Humaine," which is concerned with a period of civil war in China before the outbreak of the Sino-Japanese War, Malraux, who knows and understands the Chinese, allows no political consideration to drown his main theme: the ordinary people. The idea which dominates the book may be summed up in a sentence, as Malraux wrote it of his principal

character: -

"His life had a meaning, and he knew what it was: to restore their personal dignity to every one of those whom hunger was destroying, like an insidious plague, before his eyes. Those were the people he belonged to . . ."

Again and again the emphasis is clear: the suffering of the ordinary man and woman, not

the didactical outpourings of the ideologists or the contemplation of the happy and successful, is the power that moves these writers to greatness.

Malraux again heard in the bloody struggle in Spain the same call. He fought in the Republican Air Force and afterwards he wrote of the people who fought with him and the people whose lives were broken up and shattered overnight by the war which they did not want and did not understand the reason for: "Days of Hope" is a great book, and the theme is again the idea of self-sacrifice for the sake of human liberation.

During the Spanish War there also emerged the first signs that the English could understand the misery of others. Kenneth Allot began a poem:—

"From this wet island of birds and chimneys Who can watch suffering Europe and not be angry?"

But this awareness was confined mainly to a few poets, and they were more at pains to point a warning of things to come than to interpret the sufferings of the Spanish people from the Spanish point of view. And, too, there seemed, by the end of the Spanish War, to be growing up a feeling of hopelessness and inevitability in their writings, which was perhaps typified by the closing lines of Auden's "Spain":—

"The stars are dead. The animals will not look.

We are left alone with our day, and the time is short, and

History to the defeated

May say Alas but cannot help nor pardon."

This is a different sentiment from that expressed even in the title of Malraux's book, "Days of Hope," or in the conclusion drawn from Hemingway's "For Whom the Bell Tolls." Perhaps it has been too many years since the English suffered.

I have purposely left the French writers, with the exception of Malraux, until last, because their development and the changes that have taken place in their writings between 1920 and 1940 throw into relief the effects of mounting oppression during those years.

The first post-war decade of French writing has been well summed up by a Frenchman,

Paul Morand, when he says: --

"The vice which characterises the year 1920-1930 is indifference. Our best books from Gide to Proust, are manuals of indifference."

For France, the most civilized or most decadent country on earth, found itself in 1920 a victorious nation in a world at any rate theoretically at peace, in a world tired of the restrictions of the years of war, in a world where social and moral standards were at a discount, in a world whose inhabitants were concerned principally with "enjoying themselves." How did the French writers react? They either cancetured the escapism around them or they themselves tried to escape by plunging into movements such as Surrealism or Dadaism. This was not a conception of greatness, of anything worth while: to read now much of the most highly praised French literature of the 'twenties inspires merely amusement.

But gradually, although the escape-wish of the people did not die down, the mood and tone of the writers changed, under the growing pressure of a realization that the world was suffering. Malraux's epic works came into prominence. writers like Chamson and Jean Giono took as their themes the lives of the peasants of France. bones and body of the country, which went on in the same way no matter what changes of heart and intellect there were; and all through the ranks of the French writers there crept an increasing awareness of the tragedies that were being played out in the countries around them. tragedies that were so greatly affecting not the rulers or the ruling classes, not the financiers or the ideologists or the cranks, but the ordinary humble man and woman trying in a losing struggle to live their little lives at peace with their neighbours. And then, one day, tragedy struck home at France herself.

So much, then, for those strange ten years before the war.

There is an analogy that has been discredited by some: it is that the flower that springs miraculously from the garbage heap is more lovely than the flower that grows in a well-ordered bed. But there is truth in it, a great deal of truth And, in these tragic days of oppression and despair, who can say what beauty may even now be springing from the garbage heap of suffering Europe?

# On Winning the Peace

"... But just as thought and knowledge by hemselves are not enough, so feeling and vision y themselves are not enough. It is the marriage f thought with feeling, vision with knowedge, that breeds wisdom and judgment. Even hese are not enough without the means of exression in action. It is manifestly not enough n the British Commonwealth that we should nerely feel that we belong to each other, any nore than it is enough for world security to feel hat we belong to European civilization or to Christendom or the brotherhood of all mankind. If we are to marry sense with knowledge to peget judgment, and from judgment to take action, we need the means of pooling facts and deas and of reaching common decisions. This, then, is the basic problem that faces the Prime Ministers of the British Commonwealth, and by their very meeting together they are helping to solve it.

"I am one of those who believe that we do
the greatest disservice to the cause of world peace
and brotherhood by failing to make the most of
feelings of common destiny based on blood or
history. For such feelings are the necessary ingredients of lasting international organization
which it is most difficult to manufacture, to do
without, or to replace with synthetic substitutes.
If we are to build stone by stone a fabric of international order and security, we cannot be sure
that our building will last unless it is bound with
the cement of common feeling, the sense of belonging together. Slowly that sense will spread
over the world at large, but only slowly. We must
make the most of it where it already exists.

"That is why I believe that even if the British Commonwealth had no special reasons for continuing as a defensive or economic bloc, it still ought to be preserved and strengthened, in the interest of world peace and prosperity, until something better can be put in its place—better in the sense of being able to make more than equal exchange for the deep sense of belonging together which is the essence of the Commonwealth connection. The world needs the British Commonwealth as much as the Commonwealth needs the help and friendship of the rest of the world. What we want to do is to strengthen our ties and sense of common interst with the rest of the world without weakening them among ourselves. That does not seem to me impossible or paradoxical, but on the contrary a sound and practical task, far less difficult than many that

we shall have to undertake in those dangerous post-war years."

—Broadcast by H. V. Hodson in the B.B.C.'s Pacific Service.

"It is blatantly apparent that the last war and this war have between them created a demand for international law and order and for international security so that national crime will be forcibly prevented.

"There are millions who will demand that nations become law-abiding, not optionally and if they feel like it but forcibly and completely under the compulsion of a supreme international authority, applying its laws with the force of an international instrument of the law.

"The 'liveried retainers'—armed forces of the nations—would then be merged into one hon-

ourable instrument of justice.

"This is what we want between the nations for the sake of the safety of our sons and our sons' sons.

"War is a simple process of multiple crime. While in it there are many acts which, through courage and self-sacrifice, are of the highest nobility, war itself remains a crime of unsurpassed depravity.

"Perhaps our statesmen are so involved in their complex political considerations that many of them are not as deeply conscious of this demand as its magnitude might warrant.

"There are millions, however, who have suffered in this war to a degree which only they can understand, who will not accept the weak excuses and the fragile half-hearted efforts of the past."

—Air Vice-Marshal D. C. T. Bennett in an article in the "Law Journal."

"It will not be sufficient when fighting ceases merely to draw up a treaty and then forget about it. The central error of our course in 1919 was the false assumption that words could create a peace.

"We may again be tempted to feel that with the defeat of our enemies and the proclamation of peace we can afford to rest on our oars. But the truth is those years that follow will be decisive. When we have ceased to wage war we shall have to wage peace."

—Mr. Dewey in a speech at New York on 27th April announcing his approval of U.S. foreign policy enunciated by Mr. Cordell Hull on 9th April.

"... Our economic policy must be based on realities. We must recognize our home needs. We must recognize the economic strength of other countries.

"We had learned that if we were to preserve peace in future we must be prepared for war.

"The Government was committed to a policy of full employment in this country, which meant full employment here, throughout the Empire, and even greater areas than that."

—Lord Woolton, Minister of Reconstruction, in the House of Lords on 16th May.

"It is of the utmost importance to the Commonwealth that there should continue to be the greatest possible co-operation among its members. In like manner it is, I believe, of the utmost importance to the future of mankind that, after the war, there should be the greatest possible co-operation among the nations of the world. Our war-time co-operation of the Commonwealth is not the product of formal institutional unity; it is the result of agreement upon policies of benefit to all. Moreover, they are policies that make an appeal 'to all sorts of men, in all sorts of countries,' provided only they are men of good will.

"If, at the close of hostilities, the strength and unity of the Commonwealth are to be maintained, those ends will be achieved not by policies which are exclusive, but by policies which can be shared with other nations. I am firmly convinced that the way to maintain our unity is to base that unity upon principles which can be extended to all nations. I am equally sure that the only way to maintain world unity is to base it upon principles that can be universally applied.

"The war has surely convinced all nations, from the smallest to the greatest, that there is no national security to be found in the isolation of any nation or group of nations. The future security of peace-loving nations will depend upon the extent and effectiveness of international co-operation. It is no less true that it is not the great Powers only that are needed to defend, to preserve, and to extend freedom. We should be false to the freedom for which we are fighting if, at any time, we failed to remember that no nation liveth unto itself; and that nations great and small are members one of another.

"It is not merely the security of nations that is indivisible. Their prosperity also is indivisible.

. . . Now is surely the time for the world to realize that, just as no nation of itself can ensure its own safety, so no nation or group of nations can in isolation ensure its own prosperity.

"For my part I profoundly believe that both the security and the welfare of the nations of the British Commonwealth and, in large measure, the security and welfare of all peace-loving nations will depend on the capacity of the nations of the Commonwealth to give leadership in the pursuit of policies which, in character, are not exclusive, but inclusive. How far such policies can be successfully pursued will, of course, depend on the extent to which other nations are prepared to pursue similar policies. But let us, at least, wherever that is possible, give the lead that is in the interest of the world as a whole.

"Over many years Canada's relations with the United States have been especially friendly Throughout the war we have followed the path of co-operation. We like to think that our county has had some part in bringing about a harmony of sentiment between the United States and the whole British Commonwealth. That harmony is the foundation of the close military collaboration which is proving so fruitful in this war. It will ever be a prime object of Canadian policy to work for the maintenance of the fraternal association of the British and American peoples. When peace comes it is our highest hope that the peoples of the British Commonwealth and the United States will continue to march at each other's side, united more closely than ever. But we equally hope that they will march in a larger company, in which all the nations united to-day in defence of freedom will remain united in the service of mankind.

"The present war is different from any war in the past. It is different in scale. In any accurate geographical sense, it is the first world war in history. It is a war that is being fought not only on land and at sea, but also in the clouds, miles above the surface of the earth. It is, moreover, a war that is not confined to the material realm. It is a struggle for the control of men's minds and men's souls. Its outcome will shape the moral destiny of the world.

"The support of our fighting men, and our debt to all who are near and dear to them must extend beyond the theatres of war. It must look beyond the end of hostilities. We owe it to all who bear the heat of the strife; we owe it to those who are crippled and maimed; we owe it to the many homes that are bereaved; we owe it to the memory of those who give their lives, to do all in our power to ensure that their service and their sacrifice shall not have been in vain

"In the past the sacrifice of human life in war has been commemorated in monuments of stone or bronze. After this war we must create a more fitting memorial. That, I believe, will be found only in securing for others the opportunity of a nore abundant life.\* Already we, of the British Commonwealth and Empire, are a community of many nations, of many races, and many ongues. Already we have advanced far in the art of responsible government, in the practice of nternational co-operation, and in the application of the principle of mutual aid. Surely it is ours to help fashion a new world order in which social security and human welfare will become a part of the inheritance of mankind.

"The war has been none of our making. We sought, above all else, the promotion of peace, of understanding, and of good will. We deplored the extension of war to all parts of the world. Yet in the perspective of time this world-encircling danger may prove to have been a blessing in disguise. Only in this way, perhaps, could other nations, as well as our own, have come to see that the interests of mankind are one, and that the

claims of humanity are supreme. " Our first duty is to win the war. But to win the war we must keep the vision of a better future. We must never cease to strive for its fulfilment. No lesser vision will suffice to gain the victory over those who seek world domination and human enslavement. No lesser vision will enable us fittingly to honour the memory of the men and women who are giving their all for freedom and justice. In the realization of this vision, the Governments and peoples who owe a common allegiance to the Crown may well find the new meaning and significance of the British Commonwealth and Empire. It is for us to make of our association of free British nations 'a model of what we hope the whole world will some day become.'

> —Mr. Mackenzie King, Prime Minister of Canada, in an address to a gathering of members of both Houses of Parliament on 11th May, 1944.

### Women's Role in the New World

Speaking in conclusion of the "Pioneers of Progress" Series of broadcast talks, Mavis Tate reminded us that women have made valuable contributions to different walks of life, and must be given opportunities for sharing in the planning and ruling of the world of the future.

The work of women, as of men, is to make a better, safer, happier world for children to be born into, and to create world conditions under which those children, boys and girls, may flourish and lead full creative lives side by side.

"Of course, if men fear that by allowing women to work alongside them there will be less

work and that they will be in danger of being unemployed, they will harm both themselves and women. The power of fear is tremendous and always destructive."

"... Surely it is time we began to appreciate the spiritual and mental capacity of mankind. Men and women are partners; both are equally important, both have a vital contribution to make, and both should be free to develop and give of their best to a world which sorely needs wisdom, beauty, courage and imagination to solve the tremendous problems which beset us all.

"We have many immense difficulties to overcome before we can say that our children will really have a fair chance in life. We must not add to them by building up barriers in our own minds about what people can or cannot do. We all have power and resources greater than we dream of if we do not allow fear to destroy our power and blind us to our opportunity."

### WORLD SECURITY

"In devising machinery for the preservation of peace and international collaboration he believed that one fundamental was that any organization established must include all the Great Powers who must ensure the preservation of peace till a permanent effective system of security could be established.

"It was in this vital transition period that the foundations of world organization must be laid. It must safeguard the weak Powers as well as the strong, but the weak must do what they could in defence of their territories and in co-operation in a system of regional security in their respective areas. The corrective of domination by the Great Powers must be an assembly of nations moulding policy on a democratic basis. This world organization must have a combined naval, military, and air staff to prepare plans and co-ordinate action for the maintenance of peace. It was very important that this world system of collective security should be buttressed by regional [see following extract from H. V. Hodson's broadcast] arrangements."

—Mr. Curtin, speaking in the Commonwealth Parliament at Canberra on 17th July.

In a recent broadcast in the B.B.C.'s Pacific Service, H. V. Hodson discussed the theme "of ensuring peace by preparing against what are practically possible wars," presented in a previous broadcast, a step further. Some of the points he made are recorded hereafter. They are

<sup>\*</sup>See article "Education for Living—Its Practical Application" (page 203).

deserving of careful consideration and discussion.

He contends that "We can be sure that if the World Security organization is equipped to stop or win great wars it will certainly be capable of stopping or winning small wars. . . ."

"Great wars... can be fought only in certain theatres, partly because the great powers are few, partly because they can only actually fight

in a few parts of the world.

"Those possible theatres of great wars are, first, the oceans, for all the oceans together are one theatre of world war; second, north-west Europe; third, the Mediterranean basin; fourth, the plains of eastern Europe and western Russia; fifth, east-central Asia from the Bosphorus to the Indian North-West Frontier; sixth, the eastern rim of the Indian Ocean from Burma to Samoa; seventh, the borderlands of eastern Asia from the south China coast to Inner Mongolia and Vladivostok; and eighth and last, north-east Russia, the Aleutians and Alaska.

"World security must make possible wars impossible on all these eight fronts, bearing in mind that there are two ways of making sure that neighbours will not fight—the one, that the penalties of aggression are too great for war to be worth while, and the other, that the neighbours are friends, determined to adjust all their differences by fair and peaceful means. The second way is not only morally better than the first but once established is far more certain.

"The difficulty in this imperfect world is to get it firmly established on a basis of equal justice, not of one-sided appeasement. Eight world police districts, then, neither more nor less. If the world security organization takes care of these, whether by political or military means, it will be able to cope with the defence of peace and the defeat of war-makers anywhere in the world. On the other hand, if it neglects any one of the eight there will be a loophole through which world war may escape from its prison and seize us once more by the throat.

"It follows that the forces at the disposal of the world security organization, whether they be national or international forces, must be not only adequate in strength to their eight major tasks but also designed, equipped, and located to deal

with them.

"... Possible wars depend not only on the position and size of the would-be war-makers but also on their relative preparedness. If the world security organization is to make possible wars impossible, the forces at its disposal must be not only permanently large enough and properly disposed to cow the would-be aggressors but also a jump ahead of them in technical prepared-

ness, not two jumps behind.

"Technical preparedness implies industrial and scientific research and planning, as well as constant development of weapons and training. It means having enough of the forces that cannot be improvized, not only to do the job while larger forces are building but also to serve as a nucleus of rapid expansion. It implies a constant alertness and foresight. But this readiness must not be only technical, it must be political, too. We must be a jump ahead of the international criminal in political energy and vision.

"Remember that the police forces of our own nations do their job far more by brains and skill and constant watchfulness than by subduing the criminal by brute force. So it should be with world police forces and with the criminal nations. Once again, the lesson of the Normandy beaches, seen against the horizon of possible wars, is that the

price of peace is eternal vigilance."

### The War Over—What Then?

BY AIR COMMODORE E. L. HOWARD-WILLIAMS, M.C.

(Chairman of the Executive Committee of the Royal Air Forces Association)

SECURITY is, I suppose, the symbol of our thoughts for to-morrow; international, national, and personal security. I am hoping to tackle the first two in the next number of the R.A.F. QUARTERLY. On this privileged occasion my old friend, Wing Commander C. G. Burge, has placed a thousand words at my disposal to tell you about the third—personal security—and how the R.A.F.A. can help you.

"To the devil with history," said Von François in 1659. "What is the Problem?"

What is the problem facing us all when the war ends? I sat down and asked myself a number of questions. The answers led to one conclusion. It was that the great majority of airmen and airwomen—officers and other ranks—do not know what the Royal Air Forces Association is and what it is going to mean to them; and that

they have a far greater need to know than they realize.

Here are some of the questions I asked myself, and a few of the answers, that you may make your own decision in the matter. I hope it will lead you to team up with us.

# WHAT IS THE R.A.F.A. AND WHO ARE ITS MEMBERS?

The R.A.F.A. is an Association of airmen and airwomen which was first formed in 1930. His Majesty the King is our Patron. Marshal of the R.A.F. the Viscount Trenchard is our President. Air Chief Marshal Sir John Steel is the Chairman of the Council, a democratic affair of some forty members, two-thirds of them freely elected by the branches and one-third freely elected by the Council itself.

The Association is officially recognized by the Air Ministry, who have an officer of air rank and a senior W.A.A.F. officer on the Executive Committee and on the Council, in order to help us where they can do so.

Anyone who is or has been an airman or airwoman, officer or other rank, in any of the Commonwealth Air Forces at any time, can be a member.

#### WHAT ARE THE OBJECTS?

Briefly, to look after the well-being of our own kind now and when the war is over. An introduction here, advice there, and comradeship everywhere—that is our job. "United we shall be strong in our ability to help the weak."

Security with opportunity, happiness with friends, we will co-operate gladly with anyone who has the best interests of ex-R.A.F. and ex-W.A.A.F. at heart. This includes, among others, the R.A.F. Benevolent Fund, the British Legion, and the Soldiers', Sailors', and Airmen's Help Society.

### How WILL IT WORK OUT?

Briefly here is the set up. We already have some seventy branches spread all over the Commonwealth. They are the forerunners of a thousand yet to form. We hope to adopt a County organization. We are opening new branches every month.

We have just started a Public Relations Campaign and an appeal for funds to enable us to open these branch centres. Our object is to have at least a representative and a room in every village, a centre in every town, wherein ex-R.A.F. and ex-W.A.A.F. may meet, talk over old times and help each other.

These branch centres are run by committees, each with their president and chairman, their

secretary and treasurer. They may later have deputies to each of those appointments, and chaplains and lawyers and all manner of professional and business companions.

We already have an Employment Advice Bureau, Pensions Department, and a Legal Panel. These are but the beginning.

#### A Few Questions for You to Answer

Let me now pose a few questions to you. I have not the space to give you the answers, but will leave you to think them out for yourself. I will content myself by saying that as Chairman of the Executive Committee of the R.A.F. Association, on your behalf I am deeply interested in every one of these matters. Further, I believe the time will come when we shall be able to play our part to help the nation, through yourself, towards the tremendous future which lies ahead of us all—if we ourselves work and live for a full life and do not remain content with living but to die.

1. Shall I be given good facilities to emigrate post-war, to own and farm some of the land my forbears fought for and won or peopled; to places like the Sudan and Kenya, and our other colonies, to our Dominions?

2. Shall I be able to own the house I live in, and a little ground with it; or shall I live until I die without a stake in the great Commonwealth and Empire for which my forefathers and I fought?

3. Will my children be a burden to my wife and I because of taxation; or shall we be encouraged to build a land of happiness and plenty?

4. Shall we be able to take an extra month's holiday every five years or so, and travel after the war, to see something of the world; or will we all be confined to our own villages and towns?

5. Provided we work hard and well, cannot some system be devised whereby we may reap the just reward of our labours either in kind or in leisure?

6. Will there be stability post-war, and work for all, with houses and furniture?

7. Is the future of the Commonwealth going to be built up around the air, in the grand manner; or are our elder statesmen going to try to recreate the world of the past century?

Let us face facts. A decade and more ago had we airmen of the day been listened to there would have been no war. Many among us knew the answers then. Some among us gave them. Our arguments are in black and white for all to see.

In the world of to-morrow much the same may apply. The air age has come to stay, exactly as did the marine age a century or two ago. The airmen of the Royal Air Force now have to fit themselves to take the place of sailors of the Royal Navy, as the backbone of the country's security

We shall only have ourselves to blame if we fail in the new world, a world which will surely demand high standards of unity and loyalty, if the vision and energy, the enthusiasm and courage, the industry and ability of airmen and airwomen everywhere is to rise to fill its appointed role in the world.

Our personal security in the new era can only be assured by bold policies and wise endeavour. The engine of our future is already ticking over. We must wait for it to warm up before we can prove its "revs" and then take off. It is my duty as the pilot to see that all is as it should be before I report to the watch office—in this case our Council.

#### In Conclusion

And so, if you are interested, I invite you to write to me personally. For 5s. you can join the R.A.F.A. now, when your membership will run until the end of next year. But we do not want you to join so much for what you can get out

of it as for what you can put into it. If we all follow that policy, we shall indeed be able to do what we have set out to do.

If I have not convinced you I shall be sorry. It will have been my fault. Wherefore I beg you will then read between the lines of what has gone before, and see if you can find the something I have sought to put there—the spirit of the R.A.F.A., did you but know is potentially your greatest friend.

By the way, once you have joined us we shall not readily let you go! As well be advised of our importunity, for we are proud of our friends. If you are able to bring our objects to the notice of benefactors we shall be doubly pleased, because we need their help in order to secure our branch premises.

Whether you join us or not, good luck to you, for our field of endeavour is everyone who has ever had the honour to belong to what I may be forgiven for regarding as the finest services in the greatest experiment the world has ever known—the British Commonwealth of Nations.

## **Collective Security**

BY A GROUP CAPTAIN.

■ ENERAL SMUTS, who gave us his views Ton various post-war problems in an inspiring address to both Houses of Parliament on 21st October, 1942, has now given us further food for thought. On 25th November, 1943, he set an example in fundamental thinking and made a penetrating analysis of the New World; his remarks on the future of Europe and on the problem of power cannot fail to be of vital interest to the Fighting Forces. "This war has taught us," he said, "that we cannot get away from the problem of power. That is where the greatest war in history had its origin. We have found that all our idealism, all our high aspirations for a better world and a better human society, stand no ghost of a chance unless we reckon with this fundamental factor, and we keep power well in our minds when we search for the solution of the problem of security. The question of power remains fundamental, and it is, I think, the great lesson of this war. Peace unbacked by power remains a dream . . . If we leave the future security of the world merely to loose arrangements and to aspirations for a peaceful world we shall be lost. . . . The League system remains, on the whole, a good and proper one to continue in the future. But when it

comes to questions of world peace, security and aggression, for which we did not make sufficient provision, we shall have to revise the Covenant on the lines I have suggested."

These are wise words and the courageous confession of one who was closely associated with the League from its inception, a world organization which we refused to endow with power, both military and economic, to enforce its decisions. But how is military power to be organized on an international basis? He advocates that the three Powers must be primarily responsible for the maintenance of security and for the preservation of world peace. A practical solution may. perhaps, be found by creating an International Police Force consisting of (a) the national fighting forces of the three powers, which may be regarded as contingents in the International Force and (b) an international or composite force, individually recruited from amongst the smaller powers. Mr. Churchill possibly had something like this in mind when he referred to "forces, armed forces, national or international. or both" held ready to enforce the League's decision. Such a solution provides many problems, not least being a more enlightened public opinion.

American opinion now shows a definite tendency towards a plan for organizing peace on a world basis. This was expressed very clearly in a resolution by the Senate Foreign Relations Committee at Washington in October. It advocated that "The United States, acting through its constitutional processes, shall join with the free and sovereign nations in the establishment and maintenance of an international authority with power to prevent aggression and to preserve the peace of the world." It is interesting to note that the chief amendment to this resolution came not from the isolationists, of whom there are now but few, but from those senators who wished to be more explicit and advocate in unmistakable terms an International Police Force. Mr. Sumner Welles, former Under-Secretary of State, declared on 17th October that the United States should join with other nations of the earth in creating "that kind of free world organized under Law and made safe by armed might when necessary against law breakers, which men and women have envisioned for centuries past, and which they have so far fruitlessly sought to attain."

Opinion in Russia on this matter has not been clearly defined, but we cannot fail to be influenced by her pre-war attitude to the problem of war and the Nazi aggression, which was undermining the peace of the world. Russia has repeatedly called for a plan collectively to resist aggression. Speaking at Geneva on 28th September, 1936, M. Litvinoff said: "The aggregate power of peace-loving countries would considerably surpass the strength of any possible combination of countries which an aggressor might muster. Joint action of those forces would avert the peril of war and compel the aggressor, sooner or later, to ask to be admitted to the common system of collective security."

Political opinion in this country seems to be largely divided between those who give lip service to collective security in somewhat vague and general terms, and those who in clear and unmistakable terms advocate an international organization that can be trusted to give justice and security to all countries, great and small. Sir Archibald Sinclair, Sir Stafford Cripps, Mr. Herbert Morrison and an increasing number of responsible statesmen have given the country a clear lead. Our valiant Prime Minister, Mr. Winston Churchill, has periodically found time to tell us what he has in mind; his broadcasts upon his country's aims and upon the issues of the times have been an encouragement to all thinking people. Many must have been gratified to hear his reference to " a really effective league, with all the strongest forces concerned woven

into its texture, with a High Court to adjust disputes, and with forces, armed forces, national or international, or both, held ready to enforce these decisions and prevent renewed aggression and the preparation of future wars." No more definite statement could have been expected from the Prime Minister under the circumstances, and it is for lesser men to suggest some of the possible details of the new world structure. Security from the fear of war is needed above everything else in the post-war world, and it is becoming increasingly clear that this can only be achieved by the creation of a new League of Nations supported this time by overwhelming military force. Will this force be composed eventually of national contingents working in co-operation, or must we rely upon a new conception of defence and create an international force?

National forces alone have proved to be no security against war and have failed to ward off two world wars in the past thirty years. There is always the danger that, if national interests are not threatened, these separated forces will be held back and not used immediately in support of international law. We need a system which places all armed forces automatically at the disposal of the International Authority. A step forward will have been made if national contingents are trained to co-operate under a permanent International General Staff: for a time at least we may have to be content with this essential step. But ultimately we must plan for a force that is internationally recruited, trained and paid; a force that is directly responsible to the new League. The three Powers must retain the leadership in peace and upon them primarily must fall the responsibility of policing the world.

What are the real difficulties? The political one is certainly the greatest, but politicians need not fear that their aspirations will prove impractical. Many would like to support the general idea, which hitherto they have been led to believe is impracticable. They may recollect that Mr. Chamberlain was a supporter of League principles until 1936, when he denounced a continuation of League sanctions against Italy as "the very midsummer of madness." They may agree with the view expressed by Lord Davies in "Foundations of Victory" that Mr. Chamberlain's somersault was due to "the opposition of the fighting services who assured Mr. Chamberlain that the creation of an International Police Force was an impracticable proposition. Instead of instructing them to work out a technical plan based upon this principle of collective security, he meekly acquiesced in their objection and abandoned the project."

The mass of the people in this and in all countries cannot be sufficiently informed or politically minded to judge many of the complicated issues of the time, especially in international affairs. But public opinion is generally sound, is becoming better informed and is capable of making its voice heard. Leadership must be trusted only to those whose forecasts have proved reasonably. accurate and who are guided by right rather than expediency. It is possible, if not probable, that public opinion on the subject of an effective world government is in advance of many of its government spokesmen. The officials concerned are probably more acutely aware of the difficulties. It is one thing to support the right principles; it is quite another to see any way through the steps and difficulties of preparing a detailed military plan which would give effect to it.

Air power is now predominant in war, and its potentialities will still further increase. Air power must be co-ordinated and controlled in the cause of peace and security, and air forces must be absolutely forbidden to the Axis powers for many years. Civil aviation might again prove a source of trouble if allowed to develop entirely along national and competitive lines; properly co-ordinated and controlled by an international authority it may yet prove to be a blessing to men and a power uniting all nations. The possibilities for good have obviously been envisaged by the Empire Air Conference, presided over by Lord Beaverbrook, who stated in the House of Lords, on 20th October, 1943, that the Conference came to the unanimous decision "that the. international air transport authority should be intimately associated with and responsible to any United Nations Security Organization which might be established."

The main problem will be the policing of Europe, the source of most of the world's troubles during the past thirty years. After the defeat of Germany, Europe will be a continent of small nations, which must unite their defences if they

are to preserve their nationhood and cultural identity. Is it possible to create a European Air Police Force? A framework already exists upon which to create such a Force: our European Allies have been working side-by-side with the Royal Air Force, using British equipment, adopting similar training methods and co-operating loyally under a British staff.

The continued co-ordination of these squadrons, which have already proved their efficiency. should present no serious difficulty, though differences of language and other minor obstacles will have to be surmounted. In the course of time it is to be hoped that these units will become so closely interwoven and controlled as to become a single force, capable of being sent to any part of Europe to safeguard the peace. It is desirable also to try the experiment of creating a certain number of truly international units or composite squadrons. Europe obviously cannot rely upon such squadrons until they have proved themselves efficient, but the experiment has great possibilities and should be tried. Most airmen are probably still inclined to be nationalistic in their outlook, but there are undoubtedly many first-class individuals ready to join a "European Legion." Composite squadrons of volunteers, imbued with idealism and a new conception of world order, might well prove efficient, loyal and capable of being used in the first line of defence against any potential aggressor in Europe. They might well be the forerunners of many similar units and one day form the backbone of an International Force to police the world against aggression. Such a force has been advocated by many of the leading statesmen on both sides of the Atlantic as being essential to support the authority of a world or a European Council. It is a big step towards an "international organization for the maintenance of international peace and security," recognized by the Moscow Conference in October last as being necessary to the new world order.

### Indian Notebook

(Continued.)

XXVIII.

THE R.A.F. came into much closer contact with the Army in India than was normally the case at home in the years before the execrable Hitler cried *Havoc!* and let loose his dirty dogs of war. The higher administrations of the two Services were more nearly linked and at the summit were united in the person of the Commander-in-Chief. During the period of which I have been writing, this caused practic-

ally no friction. The Army chaps went out of their way to be helpful and co-operative and were good-naturedly tolerant of our eccentricities. They said, in effect: "Tell us what you want, boys, and we'll see that you get it, however incomprehensible it may be to our, no doubt, old-fashioned ways of thinking." We in our turn were grateful and tried to behave as nicely as possible.

It had not, I was told, always been quite like

that. Services are queer institutions, sensitive almost childishly so, it must sometimes seem to the outsider—in all things touching their traditions, customs and, most of all, their dignity. It is, I suppose, the reverse side of the intangible esprit de corps which makes a military Service into a living organism. At all events, one gathers that in the earlier years of the bygone 'twenties there had been a certain snappishness in their relations, and sparks had occasionally flown. The R.A.F. then was young and junior, and perhaps a little gauche: under what it took to be provocation it would flaunt its bohemian mannerisms in what must have seemed a slightly scandalous fashion. The Army was old and (especially in India) firmly ensconced in a centuries-old tradition: it may for its part have sometimes seemed a trifle pompous and censorious. Beneath it all may have lurked now forgotten controversies touching the respective functions of land and air forces and their applications to the problems of Indian defence.

However, as I say, all that in my time belonged to the past. Brigadiers and Air Commodores could be seen standing each other pink gins with the utmost bonhomie and realizing what cracking good chaps they both were—each, it might be, in his own peculiar way. In fact, all down the scale of ranks—at least until you arrived at the A.C.2, who always maintained a proud and somewhat disdainful reserve born of his conviction that the entire Indian set-up was an unintelligible pantomime—all down the scale one found the friendliest co-operation and cordial good-fellowship.

Nevertheless, as is easy to understand, faint fugitive memories of the less harmonious days of long ago still lurked dimly in the depths of our respective subconsciences. The result was that on formal or semi-formal occasions we were careful. We just took no risks of offending each other's susceptibilities. The ice was no longer thin—it was solid and firm enough: but one did not know just how much weight it would stand.

#### XXIX.

I have given this rather laborious account of the relationship between the Army and the R.A.F. in India not because it is of any importance in itself, except as an amusing recollection, but because it is the background to a story which I think might now be related without any failing in tact. Embarrassing as it was at the time, the recollection has brightened many a dull moment down the intervening years.

The occasion was a visit made by a small party from R.A.F. H.Q. to an Indian Army

technical establishment in the north. Without going into details—which indeed I now only dimly recall—there was a proposal that some rather minor training commitment should be undertaken for the R.A.F. by the Army at that particular unit. It had a technical as well as a personnel aspect, and the H.Q. party was going to survey the possibilities and report to the A.O.C. We had, among other things, to consider whether the particular job was within the technical capacity of the Army unit in question.

We arrived, I remember, on a bitterly cold January evening after a frigid journey in an unheated train. Most of the party had come from sunny Delhi and had foolishly neglected to bring any sufficiently warm clothing. We were met at the station by our hosts with a fleet of transport and whisked away to a warm and comfortable mess where we were entertained in the most generous and sumptuous manner possible. As our limbs thawed so our spirits rose. We beamed with gratitude and our hosts exuded benevolence. Waiters with heavily loaded trays sped back and forth in uninterrupted procession.

Next morning, following a noble and hilarious binge, we were taken round the workshops. These were large, well-equipped and a source of legitimate pride to their owners. The Army, especially in India, was not so fully mechanized as it has since become and here, so to say, was one of its prize pieces. Nothing could exceed my own ignorance of everything oily and technical. but to my layman's eye the place certainly looked the goods. The shops hummed, throbbed, almost bubbled with harmonious energy. Everything looked to be done at the double and yet with smooth precision. The Indian artificers (good chaps as a rule but inclined to be leisurely rather than jet-propelled in their methods) worked with tireless concentration. Sparks seemed to fly from their puggarees. Frankly it was an impressive show. Henry Ford and Lord Nuffield, one felt, could have spent a profitable afternoon here with their production managers.

Naturally they knew we were coming and were out to show us what they could do. One understood that and one appreciated the compliment. But quite clearly only a very efficient organization could have tuned itself up to such a fine pitch of effort, even for demonstration purposes.

We were shown everything. Nothing was concealed. Then we went back to lunch, and a mighty fine lunch it was, starting with an admirable sherry and pursuing a generous progress to brandy and cigars. Then at length we adjourned to the Colonel's office to talk business.

We sat, I remember, in an informal circle

round a roaring fire—for the weather, as I have said, was cold. The Colonel sat in the middle, supported by his senior technical and administrative staff.

"Well, gentlemen," said the Colonel, "you have seen our show. We hope you have had an interesting and a profitable morning. It's been a great pleasure to us to have you here from R.A.F. Headquarters, and now we want to hear what you think of what you've seen. Please give us your opinions freely and frankly."

He filled his pipe and threw the ball to the R.A.F. with a courteous and confident smile.

It was at this point that we made our first false step. What ought to have happened was that the senior member of our party should have replied in a few appropriate and well-chosen words expressing our gratitude and admiration. Then, having as it were established a satisfactory atmosphere, the technical boys could have had their crack and argued out the details of the scheme which we had come to consider. Unfortunately we were rather a mixed party and it was not quite clear who the senior member was. After a moment's hesitation someone suggested that Flight Lieutenant Biggleswick, as our technical expert, should give his opinion first.

A word about Biggleswick. He was a young officer lately come from the engineering course at Henlow. He was, I believe, a clever engineer and he knew his stuff. He was however, at that time a little lacking in general Service experience and (as we were about to learn) a trifle deficient in the finer shades of tact.

The Colonel blew a cloud of smoke and smiled encouragingly. Flight Lieutenant Biggleswick waded in.

"Well," he began, "as you'll all understand, it's difficult to make a comparison between your workshops and an R.A.F. technical establishment. In fact, it's impossible. It would be like making a comparison between a wayside garage and a modern fully equipped high-class commercial plant."

Biggleswick paused and looked round the

group for signs of agreement.

In the silence that followed I glanced over my shoulder, for I had the impression that someone had opened a window, letting in an icy current from the frozen Himalayas. The temperature of the room, a moment before so cosy and comfortable, had dropped to freezing point.

Biggleswick faintly sensed that something was wrong. He felt that he had not made himself clear. "You see," he went on earnestly, "our work is precision work. Everything has to be scrupulously clean, for one thing. That's the first thing we teach our people. Now the first impres-

sion I got of your shops was one of dirt. Now I don't say that isn't right for the sort of rough work you are doing here. But for *precision* work, naturally . . . " He waved a hand lightly to somplete the sentence.

I shivered in my seat. The Colonel's pipe had gone out. The smile had departed from his lips. The silence was such as one might experience if one were encompassed in a solid and impentrable block of ice in some wild Antarctic vastness. When somewhere in a corner a chair-leg

scraped we all started violently.

Even then Biggleswick did not stop. Convinced now that he was being misunderstood he plunged into a wealth of technical details. I did not understand them at the time and I do not remember them now. I recall repeated references to "ten thou. of an inch." Ten thou. of an inch seemed to have become the crux upon which everything hung

everything hung.

I do not think I need describe the scene further. We rallied as best we could and tried to restore the situation. I must say our Army chums, once they had slightly recovered their poise, behaved very decently. They were, I think, a little sorry for us. They remembered that they were, after all, our hosts, and that the obligations of hospitality are sacred. We even managed to make something of a joke of it, but I would not say that our laughter was as spontaneously hearty as it had been in the mess the evening before.

We talked to Biggleswick when we got him alone. He was frankly bewildered. He could not understand what all the fuss was about. "Damn it," he kept protesting, "every word I said was the simple truth. It wasn't as though I'd tried to run their show down or anything. No one can object to the truth."

That incident has remained very vividly impressed upon my memory. But it was quite some

time before I realized that it was funny.

#### XXX.

Having given some account of cricket in India it seems only fair that I should now put on record a few of my golfing memoirs. But before doing so I ought to say something about my attitude to golf and, so to speak, define my locus standi in the game. This, unlike my handicap, is not high. The most generous thing you can say about my golf is that it is brilliant but erratic: on an average I should judge that in every ten strokes one is brilliant and nine are erratic. This undoubtedly gets you places, as the Americans say, but the places it gets you are not as a rule the places to which you intended to get, and more often than not are places it is exceedingly troublesome to get out of, having once got

there. To put the matter plainly, I belong to that carefree category of golfers who hit the ball a hell of a crack and leave the rest to heaven and the inscrutable laws of motion.

I tell you this in case you are the serious sort of golfer keenly interested in the finer points of the game—swing, stance, grip, balance and what have you—one who carries innumerable shining irons in a formidable bag and coddles his wooden clubs by clothing their heads in little coloured knitted night-caps (for what purpose I have always been too diffident to ask). If you are in that rather alarming class you will be quite justified in ruling that I have no qualification to write about golf, and I accept your judgment. But I have always been in agreement with G. K. Chesterton's profound observation that if a game is worth playing it is worth playing badly, and it does not do to let the experts have it all their own way.

Most of my golf was played at Lahore. The lucky golfers of this northern city have no less than two courses at their disposal, one of fourteen holes belonging to the Gymkhana Club, the other of eighteen holes owned by the North-Western Railway. Both these courses are what might be called sporting. To strike a happy mean, they are less smoothly and richly turfed and less trimly kept than, say, Sunningdale or Moor Park, while nevertheless they are both clearly distinguishable at all seasons of the year from an as yet unexplored tract of the Rocky Mountains or of the less accessible regions of the Great Gobi Desert. Some of the fairways of the Gymkhana course have a good deal of grass on them at favourable times of the year, and the Railway course, in parts, is congenial to the growth of bullrushes. Both courses in my day were well bunkered, but the Railway was on the whole better furnished with natural hazards, such as bricks in the fairway, a dead donkey attended by vultures at the edge of the rough, or a slow procession of Indians taking a short cut across one's line of approach. All this lent variety and spice to the game, so that one's golf, whatever else it might be, was rarely

To level things up, the Gymkhana course was liberally studded with the most powerful and penetrating species of thorn bush I have ever encountered in any continent. At the slightest and most casual contact the javelin-pointed barbs of this abominable plant ripped and tore one's garments into jagged threads and flapping triangles. To play a nicely judged mashie shot, as was sometimes necessary, with a bunch of these vicious black inch-long spikes firmly embedded in one's backside called for a degree of

poise and detachment which I never fully achieved. I carry the scars of these encounters behind me to this day, as a memento of happy hours of fun and relaxation spent in those delightful surroundings.

The third tee on the Gymkhana course harboured a nest of large black ants which scampered about between one's feet as one took one's stance. Occasionally they would mistake the ball for one of their eggs or nymphs or other fugitive from the nursery, and seizing it firmly in their jaws would endeavour to carry it off as a prize for the queen. All this was most amusing.

Sometimes His Excellency the Governor would be out and one made it a point of respectful courtesy not to drive into him without warning or hold him up unduly. On these occasions the course would be rather littered with concealed police detectives. One would stumble upon a bunch of them artfully huddled in a bunker or observe the scarlet turbaned head of a Punjabi Sherlock momentarily protruding from a clump of tall grass. Their duty, I believe, was to count the strokes of His Excellency's opponents and make sure that there was no funny business.

The greens are called "browns," on account of their colour, which is bluish-grey. They are circular in shape and composed of a foundation of baked alluvial mud, rolled flat, on which is spread a thin carpet of finely powdered stone chippings. This provides a uniform and very accurate surface, so that putting is generally easier than on undulating grass greens which may vary considerably in pace. The ball, as it traverses the "brown," leaves behind it a clearly discernible trail, and when one is lucky enough to sink a real long 'un this somehow adds to one's feelings of gratification and triumph. That long, unwavering line, disappearing abruptly into the hole with an appearance of masterly inevitability, is a highly gratifying sight. Moreover, if you wish you can photograph your successful putts and get your opponent to counter-sign the prints. This comes in useful when later on you are telling people about it in the bar; or you can have Christmas cards made of them, to surprise your relatives and friends at home.

#### XXXI.

Many of the loyal and ancient golfers of Lahore will perhaps jump up and declare a little hotly that I have written in a disparaging way of their famous and charming courses, and that my description is little better than a travesty. It may be that memory has retained most vividly in my mind those features most peculiar to the Indian golfing scene and has failed to register

the amenities common to golf courses the world over. Certainly if I have at all conveyed the impression that golf in India is not an agreeable and exhilarating pastime, then I am at fault. There is a vast amount of enjoyment to be had from golf in India, and I would only qualify this by adding that, by and large, the readier one's sense of humour the vaster that enjoyment will be.

During most of the year golf is a thirsty game (that indeed is true of most Indian activities, from shaving in the morning to undressing for bed at night) and one of the delightful features of the Gymkhana course was the spectacle, as one toiled to the end of the long and rather barren tenth hole, of a white-clad club servant standing in the shade of a clump of tall trees, stacked high with every form of liquid refreshment. If ever there was an oasis in the desert it was here. I see him now, cool and dignified; in my mind's ear I hear the gentle gurgle of liquid, the sharp reviving plash of soda, the musical tinkle of ice. Here, as you will easily imagine, one paused. One gathered oneself, as it were, together. One looked at one's opponent and smiled. The courts where Jamshyd gloried and drank deep had nothing on this shadowy grove at the end of the

It is agreeable to have two caddies, small Indian boys, the one to perform the usual services of a club carrier, the other—a fore-caddie—to scout on ahead and find your ball. I would not say that they are particularly good at this, but admittedly I was used to put them to some unfair tests. It was at the twelfth hole on the Gymkhana course that the curious incident occurred which I mentioned in the very first of these notes. I had hit a mighty tee shot down the middle of the fairway and the little fore-caddie, away in the distance, was complacently watching its flight when suddenly it took an abrupt turn towards cover-point and bore down upon him like a welldirected bomb. The startled imp began to back away, but the ball pursued him with vicious determination. The boy flung up his arms in panic and, from where I stood, the projectile appeared to strike him with alarming force bang in the middle of the forehead. Horrified, I expected to see him fall senseless to the ground, but instead he leapt in the air, looked round in bewilderment, and then began to unwind his long puggari cloth from his head. From its fold, after a few turns, the ball dropped to the ground.

It was at the same long twelfth hole—by no means an easy bogey five—I performed my most memorable feat on the golf courses of Asia. With an unusual concentration of brilliance to the exclusion of the erratic I did it in three. My

pulse still beats a shade faster at the recollection. It was a great day for me, for I did the fourteenhole round in 61. This was one of the very few occasions in my long golfing career on which I played up to my true form.

That is one of the odd and rather disappointing things about golf as a game: one hardly ever finds one's true form. I never understand why. Much the same thing applies to billiards.

The pleasantest golf course I saw in India was the one at Rawalpindi, though I never had the pleasure of playing there. The Delhi course also seemed attractive. I played a few rounds at Kohat, amid the brooding hills, where there is plenty of grass but where one is sometimes liable to get mixed up in a polo game. These polonaisians are always in such a state of desperate excitement and scurry that it is a little like playing in the midst of a herd of charging buffalo. They never rein in and politely beckon you through.

#### XXXII.

While on the subject of sports and pastimes let me venture to say a few brief words about hunting in India. There are many packs of hounds, and they are enthusiastically followed. The trouble is, however, that there are apparently no foxes, or at any rate not enough foxes to go round. As a result they are reduced to the necessity of pursuing jackals, familiarly referred to as "jack." I wrote a short poem on the subject, which shall now be published for the first time. It is not literally true but it represents my feelings well enough:—

### A-HUNTING WE WON'T GO.

I have been obliged to give up hunting in India (Though I turned out with several good packs)
Owing to the confusion occasioned in my mind
By the constant allusion to "jacks."

Being one of the most absent-minded of souls I would keep thinking that we were going to play bowls.

And repeatedly arrived at the Meet

With a set of "woods," a panama hat, my Old Rasputinians blazer and a pair of canvas shoes on my feet.

This so vexed the Master

That I was compelled to return the way I had come, only faster.

You may think that this reflects a rather objectionably superior attitude of mind, and you will be right. The fact is that I was born and bred in Leicestershire. I lived during some of the most impressionable years of my life within a stone's throw of Kirby Gate, and such famous hunting place-names as Gartree Hill, Ella's Gorse and the Durham Ox were among the earliest phrases

that my infant tongue learned to pipe. The proud and magnificent spectacle of the scarlet Quorn in full cry across the winter pastures was familiar to my childhood, and more than once they virtually killed under my cradle. Thus, though I have never been what you would call a hunting man and no longer unreservedly believe that foxes enjoy being pursued quite as enthusiastically as is sometimes said, nevertheless hunting to me is something famous and splendid. I associate it with the patterned beauty of the English countryside and, inseparably, with the fame and honour of that clever and by no means ignoble animal the fox.

Thus somehow or other the hunts of India appeared to me in the light of a caricature of the sport and I was a little hurt and offended. To

assemble at 5 a.m. at the third milestone on the Ferozepore road for the avowed purpose of galloping in the wake of that ignominious and howling specimen of Oriental vermin, the jackal, is a harmless and no doubt a healthy form of exercise. But to assume the time-honoured trappings of an English foxhunt, to talk of "Masters" and "Whips," to cry Yoicks and Tally-ho and drinkstirrup-cups in an attempt to glorify a slightly elevated form of ratting seemed to me an affectation and an impertinence which I could never bring myself to approve.

So much for hunting in India, with reference to which, as you will understand, I have expressed

a purely personal point of view.

C. L. M.

(To be continued.)

### "Off The Beaten Track"

In April, 1943, the "Men's Bar" of the Mayflower Hotel, Washington, was filled between twelve and two o'clock on any week-day almost exclusively with officers in uniform mostly American, of course, but also a considerable number of men from the other united nations, Britain and the Dominions in particular.

I was sitting there one day having my lunch of beer and a club sandwich when a man dressed in the uniform of a British colonel came and sat at my table. I knew I had seen him before, just as certainly as he knew he had met me.

"Where was it?" he queried, after we had

exchanged names, "Cairo?"

"No," I said, certain he had drawn a blank, and parried, "Jerusalem, perhaps; I was there in '41."

"Never been there," he replied, "more likely Nairobi or somewhere in Kenya."

I shook my head. I did not connect his rather scholarly face with the round of drinking parties by which I remembered my visits to Kenya.

There was a pause.

"Malta?" I suggested, realizing it was my turn to move in this geographical guessing game in which I had become involved. He shook his head.

We must have remembered it at the same moment.

"Addis Ababa," we bellowed at each other to the great amusement of everyone else in the bar, who, by this time, had taken a great interest in our geographical accomplishments.

It was in the late summer of 1941—early September to be exact—that I had had the chance to visit Addis Ababa, the capital of Ethiopia, where Haile Selassie had just resumed the throne from which he was driven by the Italians in 1936. As an officer in the Royal Air Force, I was lucky enough to be doing one of those jobs which take you away from the routine life of a squadron or station, to visit places off the beaten track—I considered Addis Ababa could be termed "off the beaten track."

We took off from Asmara, the capital of the one-time Italian colony of Eritrea, and flew south-west across wild country where mountain streams rushed down steep valleys. We passed over Amba Alagi, where the Duke of Aosta made his last unsuccessful stand early in 1941. We crossed dense forests where the only signs of civilization were Italian roads, a marvel of engineering and only good point in Mussolini's programme of colonization. We climbed to over 14,000 feet to cross the mountain ranges of North-Eastern Ethiopia, and finally landed at Addis Ababa four hours after leaving Asmara. with our altimeter telling us we were still 10,000 feet above sea-level. The capital of Ethiopia sprawled amongst an eucalyptus forest without any pretence at planning. Houses were dotted everywhere and roads threaded their way through the trees at will.

To my delight I discovered that I was to stay at the British Legation, where Brigadier Lush was resident. He and his staff, of which the greyhaired man sitting opposite me was a member, lived in the legation together. These men, who in normal times were civil servants from the Anglo-Egyptian Sudan, were performing the immense task of setting up an administration in this country which was twice the size of France, recently captured from an enemy power and populated almost entirely by people who could neither read nor write, but in whose government it was the policy of Britain to interfere as little as possible.

In their house, a stone building reminiscent of a country house in the Cotswold country of England, I gained the impression that I was in the common room of a university—not an unremarkable sensation, I suppose, as all these men had been educated at one of Britain's more

famous seats of learning.

Quickly at home in such pleasant surroundings. I soon discovered that as a messenger from the outside world I was something of a novelty. It was not every day that an aircraft flew across the mountains from Eritrea, bringing with it a traveller who two days before had been in Cairo, and two weeks before in London.

"Is it true that Nelson's monument is hit?" " Are the Houses of Parliament gutted? " " Did the invasion fleet actually sail from France?" These and other fantastic enquiries about Britain's year of ordeal made me realize that a good bomb story grows with distance, and that Addis Ababa, despite air travel, was not round the corner from Hyde Park.

Living a normal life at 10,000 feet above sealevel, the height at which bomber pilots are instructed to turn on their oxygen apparatus to assist breathing, is not easy. You hurry upstairs to fetch a paper you have forgotten, or run to the telephone to receive an important call you have been expecting, and end up panting as if you had just completed the quarter-mile in record time. Six of us sat down on my first evening to a delightful dinner which, amongst other good dishes, contained roast duck and wild strawberries. Afterwards we retired to a room where a friendly log-fire burnt in strange contrast to the hot humidity of Cairo in early September which I had left two days previously. Somebody suggested a rubber of bridge, to which I readily agreed, but after three or four rounds the effect of altitude made itself felt, and my grey-haired companion fell asleep at a moment when I was about to make a small slam in hearts. It is not often that I bid and make a small slam, but my fatigue must have been greater than I realized, as I had no desire to protest when the game was declared too energetic and everyone went to bed.

Ethiopia in the late summer of 1941 represented a cause for which all free men are fighting, the liberation of a small country from the voice of a strong aggressive power. (Italy was then salethought of as a "strong aggressive power.") The responsibility for this first liberation fell on Great Britain, who was being critically watched by the enemy, allies and neutrals alike to see how she would tackle the job. Would her old imperialism come to the surface, and Abyssinia for herself being administered by the British colonial office? Would the status quo of 1935 be reastated and Abyssinia find herself an independent power? Or would her position be somewhere between these two extremes? The third alternative appeared to be functioning when I was n Addis Ababa in 1941. It was a compromise, and a very reasonable compromise, considering that about six thousand Italians under General Nas were still holding out in the Gondar area north of Lake Tana, and the Italian armies, bolstered by their German overlords, were on the Lybian-Egyptian frontier separated from the Nile valley by an alarmingly small and under-equipped British army.

Haile Selassie had been put back on his throne with simple ceremony after his five years in exile in Britain, but it was realized that to start with guidance was essential if he was to deal successfully with the changed economic and strategic situation brought about by Italy's occupation of his country and subsequent defeat in East Africa. To meet these needs, the British Government had imported civil administrators from the Sudan who had had many years' experience in African government. It was with these men that I lived while in Addis Ababa. I soon realized that I was not amongst men who wanted to exploit a land for the imperialistic greed of their own country, but with scholars who desired that those less experienced than themselves should benefit by their knowledge. As it was war time these men were disguised by army ranks, although most of them looked a little un-

comfortable in khaki uniform.

Since those early days of the Emperor's restoration he and his ministers have been left more and more on their own, until to-day they are an independent country, except for resurctions as to with whom they can enjoy diplomate relations. After seeing natives whose skin was pitted and burnt as the result of poisoned gases used so gallantly by the Italians in 1935, I do not imagine any Ethiopians resented being unable to have diplomatic intercourse with Rome.

While in Addis Ababa I had the fortune to meet the Emperor of Ethiopia, Haile Selassic. who had been an exile in England since 1936 and in the September of 1941 had been back on his throne for about a month. He was a man

small stature, who impressed me as being ry sincere in thought and deed. He is without ubt the most intelligent man in his country, ich was, I suppose, the original prerequisite an Emperor. He speaks French and English lently, but in his own palace preferred to speak

Arnheric, the language of his people, which as translated by an interpreter who stood at s side.

He took a lively interest in current affairs and lked much about air power, which he realized as a necessity to success in modern wars. At tat early date in his restoration he was already onsidering the desirability of obtaining aircraft or his country.

In his office, which was a well-furnished room a small but modern palace, a huge mastiff nat could not fail to have struck terror into he strongest heart reminded me that the Emperor was not without his enemies. The ssassin would indeed have had courage who ried to attack the Emperor in the presence of his hound that made Conan Doyle's Hound of he Baskervilles seem like a home pet.

In no country in the world can there be so nuch contrast between a leader and the people he rules as there is in Ethiopia. In America the president is the chosen leader of his people who has undoubted powers of oratory and leadership, intelligence and foresight, but is not without his equal in many other Americans who may not be so ambitious or successful. In Germany, Hitler is a common man whose famous intuition took him a long way to success but who events now show to be just a German on the run. In Central Africa the king of a tribe is the chosen or hereditary leader of his subjects, but by education and environment little better than those under him.

In Ethiopia the Emperor has not his counterpart in any of his subjects. He is a man who, despite the handicap of colour, has spoken impassioned words of warning to the leaders of many civilized countries from the rostrum of the hall of the League of Nations at Geneva, in the days when that building was still the meeting-

place of the world's leaders. He has travelled and spoken with the leaders of many countries, and forecast to the world four years before war spread over Europe that sooner or later the democracies, if they wanted to survive, would have to fight aggression.

This gifted man rules over a country whose people are not united. Many tribes who live in distant parts of the country have no feeling of loyalty to the Emperor, and a mountainous country with negligible communications, makes it difficult, if not impossible, for the Emperor to overcome these disadvantages. The war and subsequent occupation by the Italians brought a degree of unity never before experienced in Ethiopia, but its liberation and subsequent peace has given a chance for the old jealousies to assert themselves.

The people of Addis Ababa look like the natives of any other central African country. They are black with curly hair and very white teeth. They love dressing up in any peculiar clothes, not because they want to mimic the white man and be civilized, but because, as children do, they like dressing up for the fun of it. I saw men in trilby hats and a shirt and no trousers; then others in a pair of black trousers and black shoes, but no clothes above their waist; and still others with both trousers and shirt, and some with neither.

As my departure grew near I made public the greatest piece of news I had brought to Addis Ababa. I told my host that there was a spare seat in my aircraft, and that I could take one passenger to Nairobi. After much discussion it was decided that there were three candidates, a newspaper correspondent, a policeman and a soldier. It was finally decided that the newspaper correspondent was to be the lucky man. The soldier was so keen to get out of the town that on finding he was not the winner he appealed against the decision on the grounds that he was a sick man and should have been selected without a lottery. His commanding officer's reply to this move was quite unprintable, and the newspaper correspondent accompanied us on our journey south to Kenya.

# A Theatre Party

DON'T suppose it appears on your map. Sitting with its feet in the colourful waters of the Mediterranean, this little semi-Arab village is so insignificant that even the keenest topographer chooses to ignore its presence. Insignificant it was, insignificant it will be, but at

present its significance is very real in this vast struggle called war, as now it houses the Air Forces Headquarters for the Mediterranean theatre. The approach is down a road parallel with the sea, which is viewed between an impressive row of palm trees, each having a sixfoot girth. Cactus and other semi-tropical bushes mark the other side of the road down which runs a grass-filled train-track providing the inevitable goat with her continuous meal.

There are a few messes dotted around this little hub of the air, but the one I want to tell you about is known to its members as the R.A.F. Officers' Mess. It is like being at school—no house can possibly equal your own. It is rather the same with messes—that's your story and you stick to it until a posting comes along and off you go again to offer loyal support to another P.M.C. The Officers' Mess has marble steps that at one time had been impressive. The exigencies of war, however, brought the solid marble lions and urns, that at one time graced the entrance, down to the ground, breaking themselves and the steps in transit. These steps, mind you, were called upon to support so many people and things these strange days that it is not wondered that their polish reflects their disgust. Originally owned by a French Jew, the villa had been taken over by the Germans. Then the British Army had it, then the W.A.A.F. had it, and then the R.A.F. had it, and so it is hardly surprising that the steps have had it. You see, the piano has to circulate the messes (it is the only one that works)

and the bar stock has to be dragged up and the

empties slide down, and so on, up and down,

up and down.

The interior of the villa had been lavishly decorated at the hands of a French artist. The walls, gaily tiled four feet up from the stone floors, are hand-painted, each room with a different motif. In the dining-room, large panels depicting garden scenes are thrown into relief by plaster mouldings touched with gold. The ceilings are egg-shell blue with arresting vistas of lightly clad blonde goddesses—a popular feature, needless to say. The room used as a bar is quite unique. Small in size, its walls are decorated with large panels, each representing a scene from the life of Moses. The scale is out of all proportion to the room and so one is constantly aware of the large figures gazing down at the occupants. The Hun, anxious to demonstrate his renowned "Kultur," had taken a bayonet and hacked the Semetic faces, leaving white plaster gashes across these works of art. When the R.A.F. arrived it was decided that such desecration called for an antidote, and in a rare flash of genius somebody applied with paste a face cut from a monthly magazine. The effect was startling. A great hunt was immediately instituted for coloured advertisements that contained a face, A face was easy, but a face that would suit was another matter. It was insisted that each one must be right. The expression, the colour, the

poise, the perspective. Can you imagine little Moses in his basket with a smiling "Bird's Cutard" face? What sacrilege, you say? It was all swear it was not. The final effect was territal and even the many padres who passed through had to admit the whimsical humour that resultawas a great improvement on the Hun's modifications.

In these ornate surroundings in the centre this quaint village, the Mess held its Operation "Christmas." Nothing was lacking—turkey smuggled alive out of Italy by air—Christm. pudding, beautifully concocted from local frui -chicken fattened up in the garden—shersmuggled from Gibraltar—wines a la paye and spirits a la Scotland. Yes, real Scotch whish The powers that be wisely issued the real stu over the festive season with an eye, no doubt on the death rate. Have you ever tried Tunisc whisky? And then a dance—one of those chees ful jolly Christmas dances with everybody beam ing goodwill. There was a wide selection of part ners for all. An interesting collection, too, what one comes to think about it. The local girls it their bright dancing gowns brought to all a visic of the not-too-distant peace. Some had know-Paris, some Italy, some Austria. Some had sput their lives in this same spot quietly waiting through the various occupations for the obscurit to descend on them and theirs once again. It night their chatter was gay as we stumbled with our French, offering them dainties from a lade sideboard such as the civil population had not seen for many a day.

Those very brave women the British Sisters were there in their conspicuous red and gre uniforms, along with their Sisters of the Re-Cross in their smart navy-blue tailormades. Ou own girls were represented, of course—the R.A.F. without the W.A.A.F. is now considered incomplete in any field. I only wish I could tell you why they were there and what grand work they were doing. And the men—staff officers base wallahs. Laughed about by most operational boys who do not stop to think. These black-coated workers of the Air Force provide the nucleus from which the fighting elements radiate. Each officer selected because of his evperience in a particular field. Men who have fought on many fronts, men from the Battle of France, the Battle of Britain, the Battle of Norway and the Battle for Egypt. Men who help plan invasions and then help win them. Mea who have been bombed and shot down. Men from India, Egypt, Australia, South Africa, East Africa and from Britain. Men from fighters and bombers. Men with decorations for valour, for long service, for loyal service. Men from the

ork shops, from the "back rooms." Men from le laboratories and research stations of the lingdom. Men working together with a purose to help direct our mighty air arm to exterlinate the enemy. And so if you had slipped up those marble steps, past the palms and Arabs, you would have found this grand collection of types throwing a well-earned party for which Christmas conveniently provided the excuse.

# It's The Way You Look At It

By "Hamish"

E thought we were sort of heroes when we first came over You know all the we first came over. You know, all the Galahad stuff of coming to the rescue of he small and weak. Not shooting our mouths off too much because we had been told that the British did not appreciate that sort of thing but the strong silent types who loll around when things are quiet but are mighty fierce when things warm up. Sure, we had all read about the bombings in the newspapers back home, but it had not seemed to impress us much as one of those things that really happen. We figured that quite a lot of it must be pure boloney and that, maybe, if a couple of odd bombs had dropped, well, it could not make all that difference. If, on the other hand, the bombing had been real fierce, as we had heard it had, we had not seen many marks of it. But that was before we saw Eastside of London.

We flew the Atlantic Ocean in threes. Monotonous and tedious business just flying over a tumbling mass of waves. Back home in Idaho we don't have no sea at all, and for the first hour or so I was interested to look at all that salt water. Of course, we got the lakes in America and you could dump the whole of England in it and not make much difference to the water-level. I guess. But this tumbling mass of sea was different. Anyways, we had got the automatic pilot plugged in, the navigation was coming through the radio o.k., and after the first enthusiasm had worked off we all just sat back and relaxed. The weather was good the whole way but it was some thrill to be following in the paths of the early aviation pioneers, so when we landed over this side we felt mighty good. We were pioneers too when you come to figure it out. The first bombardment ships of the Air Corps and the first flyers to carry out missions in the European Theatre.

The field from which we operated was shared with the British. We had got all the dope on the British reserve and it panned out that way. They stuck to their end of the room and we lounged around ours. Naturally, as firstcomers, they had booked the end where the fireplace was and we

froze over in our corner. Sure, there were heating pipes but these British ones had about the power of the corniest striptease you could ever imagine. Maybe less. Then there were all sorts of customs we did not cotton on to right away. They did not like guns and hats in their rooms and looked askance when one of us tripped up. Then too we flew bombers and they had Spits to give us cover. Flyers talk different according to the ships they use.

On our first mission things were plenty tough. The target was a German field in France and it happened that they got warning of our approach and the reception was hot. Plenty hot. Our B.17's can stand up to a lot of punishment but the blows that came our way made us punchdrunk. The pursuits stuck to us good but they could do nothing about the anti-aircraft fire, and most of us were hit. I saw three of our small force blazing at one time and there were eight unaccounted for as well by the time that we reached base.

As I left the target area my bottom gunner reported that the squadron commander's plane was in trouble and lagging behind. There was merry hell going on around that ship with Spits and Messerschmitts milling around the sky in all directions. But he never got back.

In the mess, after interrogation, things were just as usual. We stayed at our end and they stayed at theirs. The British had had their losses too but it seemed to make no difference to them. They just stood there as usual, sipping at their beer from battered tankards, and talking. We stayed at our end a bit glum. We had not figured war out this way. We knew that there would be casualties but, like bombs, they had never really been given a great deal of thought. Presently I sidled over their end. I wanted to know what had happened to the colonel. A buddy of mine he had been.

"A burton, I'm afraid, old boy," said their squadron commander; "flamer, you know. Have a pint?"

I shook my head and wandered back to my crew while he merely turned and continued his conversation where I had interrupted him.

That night in bed I tried to get wise to the situation. The more I thought the less I could understand it. Here were we, British and American, flying and fighting from the same field, and all he could say was "a burton, old boy." But slowly I started to get things straight. I pictured the fellow in my mind, and when I did so I noticed the tiredness about his eyes. Then I remembered that one day, in a burst of confidence, one of the British had told me that their C.O. had a wizard wife, old boy. Married just before the war, you know. Never had a rest off ops and only sees her on leave. Blinded in the blitz. That had been too much for him altogether and he had switched the conversation. Those bombsights of yours. Pretty wizard or duff? He had been at war a long time too. The ribbons he wore were not issued to keep up his morale. I went on figuring and figuring most of the night but got nowhere.

We kept on operating from that base for several months till all the faces were different in the mess, both American and British. As the time went by we ceased to keep separate ends of the ante-room. By then I was commanding our crowd but the Spits still had the same old C.O. He never talked to any of us much, but one day he strolled into my office just before I was going

on leave.

"Leave, old boy, I hear," he said, and when I nodded he merely added "Me too," and re-

lapsed back into silence.

"Plan to see a bit of London?" he asked after a long pause. I shook my head. I had seen all I wanted to see of London, and did not like the place much. My hometown is a small place where folk all know each other. Too well sometimes and that causes unpleasantness, but on the whole it works out all right. I never did cotton on to cities much anyways. Their smell and noise gets me down.

"Flying down home. Aerodrome close there. Three o'clock this afternoon in the Anson. Care to come?"

You could have knocked me down with a feather. I had heard that his wife stayed with his people at a small place in a county called Wiltshire. Proper open ground there I had noticed when I had been over on a practice flight. All tidy, you know, and nicely hedged-in fields, but there were hills about and the air should smell clean.

So when I got there late that evening I was feeling pretty fine and looking forward to having a good spell of relaxation. I needed that bad too as the strain had got my nerves all strung up and my temper was apt to break easily so that I wou! The handle and bawl the crew-

chief out for practically nothing at all. But land not prepared for the shock that hit me when we

got inside the house.

It was not the old people that shot me down They were charming, and you could not have wished for a kinder welcome. It was that p She was beautiful. You would never know that she was blind at all from the way that she moves around the house and talked to you. But he beauty! She had every screen-star knocked of and more beside. And it was not only that It was the difference that she made on him. When he came in just behind me, I looked over my sheeder for instructions, as I knew she was blind at: did not want to cause any hitch in the home coming by being a clumsy loon. But he was no looking at me at all. I've never seen such a chang in a man's appearance. It was relief all over he face. War had disappeared and peace had take its place. I felt queer and stood aside to let hir pass. After all, I figured, he must want to go into a clinch. I figured just what sort of a clinch Juli. and I would go into when I got back home. But he just stood there and she just stood there. She simply with her hands by her sides and a share smile. He, with all the horror and fatigue wiped off his face in an instant, and such an expression in his eyes that made you blink and then feet small and ordinary.

I passed quietly into the living room for the door was wide open and I saw what I took to be his folk inside. They were his folk sure enough and I have never felt more like crying at the welcome they gave me. They just merely smiled when I came as if it was the most natural thing in the world for me to just walk in. I shut the door behind me and the old lady just patted a chair beside her and handed out a cup of tea. The old man sat on there and smiled too. It was one of the most skilful welcomes I have ever had There were no formal introductions and bits of awkward opening conversation at all. I was one of their family straightaway and such things be-

came out of place.

As the ten days of our leave went by I felt better and better. Not only physically but mentally. We both fished in the local brook. I had fished back home in the local creek but not this classy trout-fishing that we did in Wiltshire Occasionally we would talk, not about war and the ships we flew, but about all the things that we were going to do when we could all settle down again. I told him all about my plans for getting married to Julie and farming a stretch of land that I had had my eyes on for a long time. He told me what he intended to do in peace. It did not amount to much either. Much the same as me, just living quietly, and the less excitement.

the better. But whereas I used to grow enthusiastic over my plans and describe how Julie and me would sit in the porch of an evening and maybe watch the kids, he would be much more matter-of-fact about it all. With him it was all just going to happen. There was no doubt in his mind but his plans would work out all right. Not like me. I know I would have to work hard for what I was going out for, and might not get there. He was so sure of himself. Perhaps it was the influence of that beautiful wife.

She used to sit watching us fish. I have heard tell that the weather in May in England can be just terrible. Reckon the weather was being kind to us just for a change. The girl could sit there all day and not get chilled, and very marvellous that girl looked too. In all my stay there I never saw the two touch each other or speak. It was the most amazing and comforting relation that you can imagine. There was no strain in it. I never was put into that embarrassing situation where I felt I was better out of the way for a space of time. You know, when you instinctively feel that two people want to be alone. Occasionally he would just stand looking at her when he thought I was not around. She would look back with her lovely sightless eyes. Never a word would they say and break it up by both smiling at the same time.

I got used to the English mealtimes during my short stay, too. Tea at four, dinner—not supper—at eight, lunch—not dinner—at one. It was all so peaceful that I used to lie awake nights and just marvel at my stupendous luck. And then the day came when we had to leave. There were no good-byes—that family transcended such things. To have thanked them would have been hard on my part—there are not words made that could say what I felt. To have asked me again was unnecessary on theirs, and would have been banal. My original welcome told me that I need only walk into that living-room through the door and sit down at tea-time. Under such circumstances formality would have spoiled it all.

The same routine missions continued when I got back to the field and the British pursuits provided top cover to us as before. He and I

dropped back into our old manner and it was just as rare as before that we spoke. That brief spell was something that we shared between ourselves but do not belong to the every-day life of war and flying. It belonged to the sane world that we had left behind when Hitler marched into Poland and the Japs bombed Pearl Harbour.

I knew it had to happen. One day he did not come back. I was not flying that day as I had a bad cold, but one of the boys gave me the information. One of the B.17's lagged behind after attacking the target. It was damaged by enemy fire, one engine was smoking, another was dead and the controls must have been damaged for the ship was wallowing through the sky like a lame duck. He stayed behind to afford some protection and called up his second-in-command to take over the squadron. When they last saw him there were enemy ships all over the place milling around him, and that was all we ever knew. Our boys failed to return as well.

I had to take all my courage to make that trip to his people, but I knew I had to. I had one of our boys fly me over to that field that was so near his folk that afternoon. I walked into the living-room just like the previous time, and everything was the same. The old lady gave me my tea, the old man just sat and smiled and the girl just sat there. No emotion showed on her face. She knew who I was and why I had come, and said no word, for words were useless.

Presently she got up and walked out into the garden. I followed, and we visited all those places where we had fished and spent those brief ten days. Not even then did she speak and I could not break the silence. It was not for me to trespass on their ground. When I left there were no good-byes either. I just walked out of the house.

I realize that I can never go back there. I cannot risk the mortification of seeing those people again. They have their world and it is as near a paradise as you can get on this earth in spite of all their grief. We Americans do not expect that sort of paradise down here. We do not live like that.

It all depends on what you want. It's the way you look at it.

News from Westminster.

### Plans for The Future

From Our Parliamentary Correspondent

7HEN Parliament rose for the summer recess on 3rd August, heartened by the most bouyant of all Mr. Churchill's great speeches on the progress of the war and hoping that events on the battle fronts would produce circumstances demanding its recall before 26th September, ministers and private members could reflect upon many weeks of hard and productive effort. There now emerges as the result of their labours something like a picture of the national scene after the war. There have been many White Papers and some important legislation. The Government's procedure in presenting their views in a White Paper as a basis for discussion is generally welcomed in the House of Commons as a means of assisting the legislation which follows. The most important White Paper was that on employment policy containing the Government's proposals for maintaining "a high and stable level of employment." This was a very remarkable document and was, on the whole, well received by the House. It raised, incidentally, in rather sharper form than any other statement of policy, the interesting point as to whether such measures can be effectively carried out by any other than a National Government and one or two members asked the pertinent question: Is this White Paper a bid for power by the Coalition after the war? It remained unanswered but the general question of the future Government of this country, whether by coalition or party, remains highly speculative. He would be a rash prophet who predicted one way or the other.

Another important State document was that in which the Government announced the establishment of a National Health Service which would provide for everyone all the medical advice, treatment and care they required. This, it was stated, was the natural next development in the long and continuous growth of the health services of the country. The discussion of this subject continues and no legislation has yet been produced. The proposals have caused a good deal of controversy in medical circles. Another and much more controversial question is that of land policy which has also been the subject of a White Paper. Although this has not yet been discussed in Parliament there has been considerable criticism outside on account of the proposals for compensation and betterment, an exceedingly

complicated subject about which land owners are naturally concerned.

With the White Paper on land policy the Government produced also their Town and Country Planning Bill for the rebuilding of blitzed and blighted areas. This had a very cool reception from the Labour Party, whose principal objection was to the financial treatment of the local authorities. The Party abstained from voting for the second reading, and unless in the meantime something better is produced for the authorities. the committee stage, when the Bill is examined clause by clause, is likely to be hectic for the Government. The difficulties over this Bill are the more regrettable because the local authorities, especially those whose areas have been badi hit by the enemy, have been anxiously awaiting its arrival and require its passing by Parliamen! before they can get on with the task of rebuilding their towns.

The first of the reconstruction measures to become law—the Education Act which received the Royal Assent on 3rd August—roused a far greater measure of agreement than might have been expected from a Bill which cut across so many opinions, especially in the religious sphere. It was keenly debated but the general view was that the Government had produced an extremely sound compromise and its smooth passage was due also to the tact and good temper of Mr. R. A. Butler, the President of the Board of Education, one of the youngest and most able ministers, and his Parliamentary Secretary, Mr. Chuter Ede.

Housing is another subject which has been much to the fore—and there is no difference of opinion as to its importance nor as to the seriousness of the present position. A great many houses have been destroyed by the enemy, and the fly-bomb attacks have greatly added to the problem as the figures given by Mr. Churchill on 2nd August show. Also there has been a halt in the building of houses during the war due to the shortage of labour and materials. Thus there is immense leeway to be made up and the Government have introduced legislation to make possible a quick start as soon as the war in Europe ends upon a programme of building 300,000 permanent houses in the first two years and also of producing 250,000 temporary houses. known as "Portal" houses after the Minister of

Works, Lord Portal. Members of all parties take a grave view of the housing problem and regard the provision of an adequate number of houses as the Government's most vital domestic task. The progress of the Government's programmes will be anxiously watched. No one is too sanguine about it.

These are the things—here only very cursorily reviewed—that have been the main preoccupations of Parliament in the domestic field. There have been many others. The future of agriculture about which the House appears to be taking a welcome interest and Mr. Hudson, the Minister, a firm line; the future of controls and regulations which now govern our daily lives about which Mr. Morrison, the Home Secretary, recently gave the assurance that as soon as the European war ended the Government would state what they wished to retain and would ask Parliament to review the whole question. Our civil aviation policy has also been debated and members have re-emphasized the need for Britain to shape her own policy now so that she will not go to the post-war international conference unprepared. A good deal of interest is taken in the place to be occupied by the British Overseas Airways Corporation, and it is argued that there need now be no delay in pushing on with the production of civil types. Captain Balfour, Under Secretary for Air, told the House of Commons on 3rd August that the Government had not yet made up their mind about future policy or upon the question of departmental control of civil aviation. Most M.Ps. want to see it divorced from the Ministry, but there is a diversion of opinion as to where it shall go. Some say a separate ministry; others that it should be allied to shipping under either the Board of Trade or the Ministry of War Transport, which ever looks after shipping after the war.

On service pay and allowances there has been a running fight for a long time. Once members had digested the White Paper issued earlier this year they discovered that it not only failed to correct some anomalies but also created others. They have since been trying to have these put right and shortly before the House rose Mr. Churchill made his statement on the Government's decision on various points that had been reserved for further consideration when the White Paper was published. Questions relating to pensions have also been frequent and the Government have been urged to give more generous treatment in certain cases. In the House of Lords, Lord Boyle led a frontal attack on the Government—there is sometimes some very vigorous action in the dignified wing of the constitution—on the subject of pensions and allowances, and with his supporters succeeded in persuading the Government to make concessions with regard to education allowances for children whose fathers lose their lives in the Services. The service vote has also been a persistent topic at Question time, the Service Ministers having been pressed to see that every possible step was taken to ensure that men and women in the Services were registered. Particular concern has been expressed about those overseas.

The Government have declined to disclose their plans for demobilization for which they have been asked a number of times. They have, however, set up a special service under the control of the Ministry of Labour to advise demobilized men and women on their resettlement problems. There will be Resettlement Advice Offices

in all parts of the country.

### FUTURE OF JET PROPULSION

Some questions about the Government's intentions regarding the production of aircraft after the war were answered by Lord Sherwood, Under Secretary for Air, in the House of Lords. The debate arose out of the Government's acquisition of Power Jets Limited, a company which is developing jet propulsion. Lord Sherwood said the Government had no intention either of maintaining a State monopoly in aircraft production or of competing with private firms. He explained that the Government had taken over Power Jets Limited because the development of jet propulsion had reached a stage when, if the nation was to receive the full benefit of the invention, it was essential that there should be a permanent Government-owned research centre. There was nothing new in that, he said, and quoted the National Physical Laboratory and the Royal Aircraft Establishment at Farnborough as examples.

The Government had invested more than one million pounds in Power Jets and from the middle of 1939, when the company ran out of capital, the State—that is, the taxpayers—had defrayed all expenses and paid a fixed profit based on the company's capital with an allowance for management. The Government had built the factory and provided the necessary facilities and equipment at a cost of some £350,000. The Minister of Aircraft Production had taken over the company, whose directors had accepted seats on the new Board. The Minister had also set up a Gas Turbine Technical Advisory and Co-ordinating Committee under the chairmanship of Dr. H. Roxbee-Cox, chairman of the company. The Committee includes representatives of all firms engaged in gas turbine work. The results of the research would be available to private companies.

# Rehabilitation in New Zealand

THERE is in England to-day a great deal of interest in the future of our Empire. Most people realize that the Dominions and Colonies both provide and require many products and must be of primary importance in Empire post-war policy. In the hope that greater knowledge will breed greater understanding, I am writing this article. This paper deals with the fundamental policy of rehabilitating Service men, and, even if valueless as a model, will prove a guide to the post-war situation in New Zealand.

The New Zealand Government, profiting by the lessons learned during the rapid demobilization after the 1914-18 War, has already passed a Rehabilitation Act. This Act is administered by an Advisory Council consisting of a Cabinet Minister and nineteen members who represent various interests, including Industry and Education. The Rehabilitation Board, composed of a chairman and six members elected from the council, acts as the executive body. To advise this central board on district employment and such matters, local committees are being formed in the larger towns. This large organization has as its guiding principle these words of the Prime Minister, Rt. Hon. P. Fraser, P.C., spoken at the inaugural meeting: "The whole outlook of the country, the Government and Parliament is that there is nothing within our means and the bounds of commonsense that we can do for these men that we ought not to do. That is as big a charter as one could have."

The system virtually begins at disembarkation. After medical grading, returning Service men are granted twenty-eight days' leave on full military pay, and given a free pass for the railways. When military equipment and clothing is returned, a grant of £25 is made to each discharged Service man to purchase mufti. The scheme applies to all men, Maori or white, who have received discharges from any of His Majesty's Forces or ceased to serve in any British ship. The statutes include personnel already discharged.

#### LAND SETTLEMENT.

The settlement of land will play an essential part in the future of the country. Legislation was passed late in 1943 providing for the acquisition of land for the settlement of discharged servicemen. This act provides also for the control of sales of land to prevent undue increases of price or aggregation of land for speculative purposes. The Government's intention is to purchase farmland suitable for sub-division into two or more

holdings for returned men. Land fulfilling there requirements will be studied by the Land Sals Committee, who will then assess the value. The basic value takes into account the improvement above or below the normal standard, or any special feature, and varies accordingly. Fares belonging to members of the forces serving out side New Zealand and native or native-owned lands will not be considered for purchase. Notice of intention to purchase will be given, and if agreement is not reached between the owner and the Land Sales Committee within thirty days. land may be taken compulsorily, and the claim for compensation considered by the Land Court This legislation will remain in force for five years then come up for revision. It must be clearly understood that all land sales, whether for settlement by discharged Service men or not, will come under the jurisdiction of the Land Sales Committee. This, it is hoped, will prevent rising prices, so serious after the last war.

Material assistance will be given to ensure that Service men taking up the farming industry have every chance of success. Advances of up to £3,000, in special circumstances up to £3,500. will be granted to enable the purchase of properties or the re-financing of individual farming units already held. These loans will be made up to 100 per cent. of the productive valuation of the land. Further advances up to £1,250 are available on the security of stock or farm implements. Varying rates of interest are charged on these loans but all are on a reasonable basis so as not to embarrass the settler. Normal rates are 41 per cent. on farm loans and 5 per cent. on stock or chattels. These may be reduced to 2 per cent. and 24 per cent. respectively for the first year, and slightly increased the following years. Discretionary authority has been granted to the Rehabilitation Board to reduce the rate of interest to 2 per cent. for a period up to seven years. It is felt that this financial assistance will give any returned soldier an excellent chance of success.

At this point it may be of value to summarize the system of marketing farm produce which has been in successful operation since 1935. In order to stabilize the farmer's income, the Government assumed the responsibility of marketing all produce. This was done through Marketing Boards. In this way a permanent and economic trade was built up, free from many of the expenses inherent to sales by private companies. The pay-out per pound of butter fat is announced

reater profit is realized a bonus is paid to the producer. The companies in existence prior to the era of the guaranteed price retain all their unctions save that of sale. During the years of the operation it has assured the farmer of the pest possible return, and backed as it is by the entire resources of the country will continue to profit the farmer in the future.

#### OTHER INDUSTRIES.

The men who previously worked in industries other than farming, and those who would like to start on their return to civilian life, have been planned for. Special regulations have made it obligatory for private employers to reinstate their pre-war employees under conditions applicable to continuous employment. Remuneration is to include such increments as would have been awarded, and no employer is to dismiss a reinstated ex-Service man for six months. The State Departments of Rail, Post and Telegraph, Public Works and the Public Service, have submitted plans to absorb a great number of men into essential post-war projects. These openings will do much to prevent the chaos that ensued after the last war. Recommendations have been made to the Government by the Rehabilitation Board for the trade training of discharged Service men desiring a change of occupation. These proposals await only the endorsement by the Government of financial details. Trade schools and colleges are proposed, with periods of instruction in Government or private workshops. Provided the trainee agrees to remaining in the industry for which he is trained for a minimum of three years, the Government will arrange rates of pay on a substantial scale and advance the cost of necessary tools. Products from these trade-training centres will be purchased by suitable State departments at the current rates for similar articles.

#### EDUCATION.

In the sphere of education it is proposed to grant generous facilities to train men for professions, especially those in demand in New Zealand. Service men will be carefully chosen to make the best use of the opportunities, which include:—

- Free places at technical schools or secondary schools.
- University bursaries for university and post-primary students.
- 3. Free instruction through the Education Department's Correspondence School.
- 4. A yearly grant for instruments and materials.

 Reimbursement of fees paid to private correspondence schools of high standard where suitable facilities are not available at universities or State schools.

#### DISABLED MEN.

A small but very important part of the scheme is the training and employment of disabled men. This work will be co-ordinated carefully by specialist doctors and representatives of the employers. A modern factory is in process of erection in Wellington where equipment and amenities will be of the highest standard available. At present artificial limbs are supplied to the Government by an Orthopædic Society, and it is proposed to purchase this business and incorporate it in the new vocational centre. Plans at the moment are rather fluid, for there is no real indication of the magnitude of the task to be tackled. Furthermore, many disabled men will be unable to work, at least for some time. If a man receives his discharge while still in hospital, he is immediately granted the full disability pension of £3 per week. In addition, an economic pension, depending on the financial position of the Service man, may be granted up to £1 15s. per week, plus £1 for a wife and 10s. 6d. for each child. As the disabled man's health improves, the war or disability pension may be reduced or cancelled, but those who can never take a full part in work will continue to receive the allowance.

#### Housing.

Now to turn to the problem of providing homes and furniture for returned men and their dependants. To meet the demand for houses the State Housing Department has made plans for the construction of 40,000 houses within the next few years. There is no proposal to limit private building. In fact, facilities are being given to assist this work and permit ex-Service men to build or acquire houses. Provided the applicant can satisfy the lending department that he is able to meet commitments on the property, loans may be made up to 100 per cent. of the valuation, with an over-riding maximum of £1,500. Interest on these advances will be 41 per cent., reduced to 2 per cent for up to seven years. Arrangements have also been made to give returned soldiers a considerable preference in the allocation of State-owned rental houses.

### IMMIGRATION.

#### (Personal Views of the Writer.)

The scope of these plans for rehabilitating New Zealand's manhood is considerable, and it is certain that they will have a far-reaching effect. Increase of population is urgently required for the full exploitation of the country's wealth. However, the extensive financial obligations of the Government to the returning fighting Services will, of necessity, take priority. There is room for many settlers from Great Britain, but for a number of years it will be beyond the finances of New Zealand to offer extensive encouragement to immigrants. When the turmoil of the first peace years, with the attendant difficulties of finding employment for thousands of discharged Service men, dies down, the road will be open for progressive settlers to enter the

country. There can be no promises of unbounded help, but opportunity is there in plenty. The country has a very high standard of living and the legislation of the past years has been aimed at making basic wages of all occupations sufficiently high. The policy must be, therefore, for a period of reconstruction, followed by the immigration of selected peoples. A small country. New Zealand must ever guard against the swamping of her numbers by "undesirable aliens," but this should be no bar to the progressive settlement by British people from the overcrowded parts of the Empire.

# R.A.F. Nursing Service

BRITISH nurses are playing vital parts behind our front lines in India and Italy, and on the seas.

They are members of Princess Mary's R.A.F. Nursing Service. Daily they share dangers with their brothers in the R.A.F. In mobile field hospitals, on troopships and in camp hospitals on Italian beaches they are carrying out their difficult tasks.

When Allied troops effected landings at Salerno, nursing sisters reached another part of the beach in tank-landing craft while the Germans were shelling our craft. Yet one sister, writing home afterwards, merely said: "We had quite a busy time."

From the sands of North Africa, where they did particularly good work, came a letter stating: "It is very interesting travelling round this country. One cannot go far without seeing shells of burnt-out tanks, lorries and guns by the road-side."

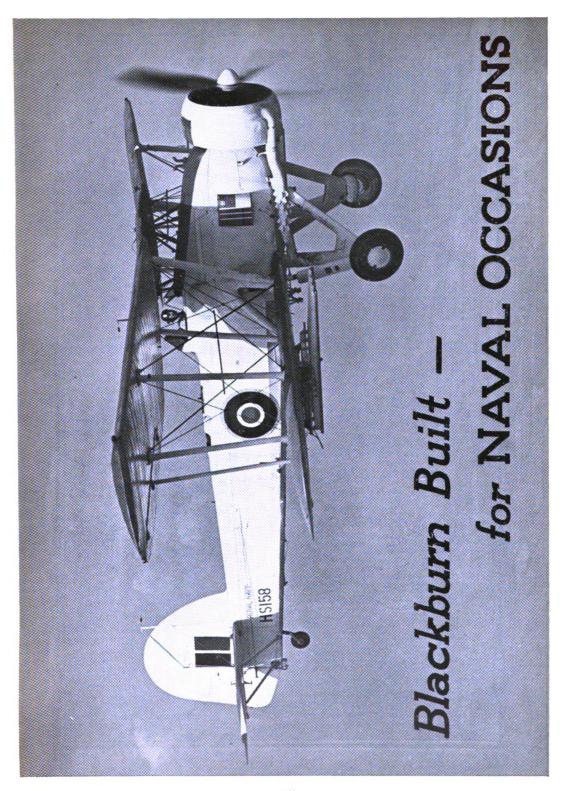
Another nursing sister wrote from India that their mobile field hospital was "Using Basha huts built of bamboo with thatched roofs, straw walls with mud coatings, and holes for windows."

She added: "We find 250-lb. bomb-cases are most useful, serving as stools, lockers, bowlstands, and duty dressing containers."

Members of this important service are recruited from state registered nurses—24 to 35 years of age for the regular service, and 22 to 45 for the reserve service. They hold commissioned ranks similar to the R.A.F., sisters have the relative rank of flying officer, senior sisters of flight lieutenant, matrons take squadron leader ranking, principal matrons are wing commanders, and chief principal matrons group captains.

They serve wherever the R.A.F. is operational, and undergo special courses. Their numbers are expanding, and there is a consequent demand for more volunteers.

Printed and Published in Great Britain by GALE & POLDEN Ltd., Wellington Works, Aldershot. Overseas Agents, INDIA: THACKER, SPINK & Co., Calcutta and Simia. THACKER & Co., Ltd., Bombay. Hisodimothams. Ltd., Madras and Bangalore. CANADA: Wil. Dawson Susscription Service, Ltd., 70, King Street East, Toronto, 2 Canada. AUSTRALIA and NEW ZEALAND: Angus & Roserrow, Ltd., SOUTH AFRICA: W. Dawson and Son (S.A.) Ltd., 29 and 31, Long Street, Capetown.



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Who's to blame? The real culprits are those Ternble Twins—zoning and restrictions. Sweet zoning means that most Naafi canteens can offer only those varieties of contectionery which are manufactured within the area, or zone, in which they are situated. Naafi distributes no fewer than 198 different "lines" of chocolate and sweets to the Services Because they are "zoned," a soldier serving in one area may be unable to buy his favourite brand; yet, on being posted to another district, he may find to his delight that his new Naafi has ample supplies. It is largely a matter of luckand geography.

Chocolate is in great demand—and restricted supply. Large quantities are needed for the armies overseas; reserve stocks are being accumulated for the Second Front and whelp to feed the starving peoples of Europe. Consequently, only a small proportion of the Service man's allocation of confectionery available at Naafi can be in the form of block chocolate; the remainder must be composed of other lines. This proportion, however, is at least as large as that available for civilians.

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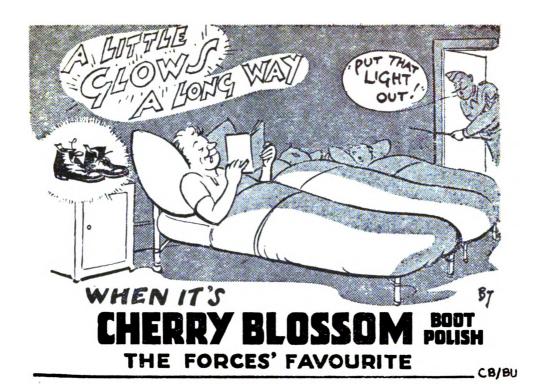


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